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AN ACCOUNT
OF THE
CRUSTACEA
OF
NORWAY

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OF THE

CRUSTACEA

OF

NORWAY

WITH SHORT DESCRIPTIONS AND FIGURES OF ALL THE SPECIES

BY

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Vol I.
AMPHIPODA

(TEXT.)

CHRISTIANIA AND COPENHAGEN
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PREFACE.

In presenting to the scientific world the 1st Volume of the great work on Norwegian Crustacea, which I have entered upon, I wish to make the following observations about the plan of the work in general, and especially that of the present Volume.

The author, who during a long series of years has been engaged by the government to make investigations about the sea-fisheries of Norway, and for this purpose has made numerous journeys of research along the whole Norwegian coast, from the Christianiafjord to Vadsø, has thereby had an unusually convenient opportunity for at the same time studying the rich marine invertebrate fauna occurring along that extensive coast, and has especially made himself familiar with the several groups of Crustacea, which had long before been his special study. A very large amount of zoological material has thus from time to time been brought together from many different localities, and among this material have been found numerous interesting forms new to science. Most of the new Crustacea have been briefly characterised by the author in several papers, chiefly published in the Transactions of the Scientific Society of Christiania, and a few groups, for instance the *Mysidæ,* have also been more fully treated of in separate treatises. It has, however, appeared to the author very desirable, that a full account of the rich carcinological fauna of Norway should be given, like that of the British Crustacea long ago published by several distinguished carcilogists, both because such faunistic works have on the whole shown themselves to be extremely useful, and because the fauna of Norway, as is well known, belongs to two distinct zoological regions, the boreal and arctic, and thus exhibits characteristic differences from that of the British Isles. Indeed, the author has long felt it as a veritable duty, by entering upon a such work, to utilise his long experience for the benefit of future carcinologists. But the great expenses connected with the publication of such an extensive work in the usual manner, as publication from the University, have hitherto prevented him from realizing his plan, and it is only some few years since the idea struck him to get the work published

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in the mode here adopted. By reducing the expenses of publication as far as possible, and inviting to a general subscription, I supposed indeed that the publication of the work could be carried on by one of our publishing firms, without any real pecuniary loss, and by this means I have now the satisfaction of seeing the 1st Volume of my work accomplished. I cannot of course expect to be enabled during the remainder of my life to bring to a conclusion a work of such an extent as that now entered upon, comprising, as it does, the whole rich carcinological fauna of Norway, but I venture to hope that my health and working power will at least suffice for accomplishing a part of this formidable work. If the volume now published should succeed in gaining the interest of Norwegian and foreign zoologists, and the anticipation entertained in beginning the work should thus be confirmed, it is my intention immediately to enter upon the publication of the 2nd Volume, treating of the next order, the *Isopoda*.

As to the Volume now accomplished, it has been wholly devoted to the extensive order of the *Amphipoda*, one of the most difficult of the Crustacean groups. The chief earlier investigation of the Norwegian Amphipoda is due to the late Dr. Axel Boeck, who at first published a brief account in Latin, and subsequently began the elaboration of his well-known great work, containing full descriptions of the species, and accompanied by numerous lithographic plates. Unfortunately he himself only published a comparatively small part of this work, the remainding, far greater part being published after his lamented death by his brother, Dr. Hakon Boeck, who was not originally a zoologist, but yet endeavoured to arrange the scattered, posthumous manuscript notes and drawings for the completion of the work. Although the great skill, with which this very difficult undertaking was accomplished, deserves the highest admiration, it was of course unavoidable, that several grave errors were incorporated in the work, which otherwise should have been eliminated. As moreover, in order to get room on the plates for the numerous figures, a most regrettable reduction in size of the original drawings was effected, and some of the figures also wrongly numbered, several of the species had in some cases become almost unrecognizable. For these reasons the work of Boeck, though enriching the fauna with an immense number of new and interesting forms, could not be used without the greatest precaution and critical judgement, and rendered in fact the study of the Norwegian Amphipoda extremely difficult and troublesome. Notwithstanding this, some parts of the Amphipodous fauna were subsequently treated of in detail by Mr. Schneider, and a most valuable account of the arctic species of the family *Oedicerideæ*, accompanied by some very good and sufficiently large detail-figures, has been given by that distinguished zoologist. But otherwise the knowledge of the

Norwegian Amphipoda was still restricted to Boeck's work, the use of which was, as above stated, connected with very much difficulty. Under such circumstances, I thought it right in the first instance to enter upon a total revision of this order, hoping thereby to supply the above-mentioned wants in Boeck's work. To this end, I have gone over the vast collection of Amphipoda made by Boeck, and especially most carefully examined the several type specimens in the collection, whereby several difficult questions about the right identification of the Boeckian species have been finally settled. Nearly all the species described in the said work have been subsequently found by myself, and in most cases examined in the living state, and numerous additional species have been procured, increasing the number of Norwegian forms to about 400 in all.

The aim of the present Volume is chiefly to facilitate the determination of the northern Amphipoda. This, I believe, may be best attained, not only by giving good and concise diagnoses of the species, but especially by supplying figures, true to nature, and of sufficient size and clearness, both of the entire animal and of the most characteristic anatomical details. The lack of good figures has indeed hitherto made the study of this interesting order of Crustacea very difficult and, in many cases, has caused sad confusion in the synonymy. Very great care has therefore been paid to the preparation of the plates accompanying this Volume. They have been all drawn by the author himself, by the authographic method applied by him very successfully during a series of years, and the habitus-figures have, in nearly every case, been copied from carefully executed, coloured drawings made by the author from living specimens, thus showing the mode of pigmentation characteristic to each species. In every generic type the structure of the oral parts has been carefully examined, and figures of the same given on a greatly enlarged scale, as the classification of the Amphipoda ought chiefly to be based upon this character.

As to the systematical arrangement of the Amphipoda, I have only made some few changes in the system adopted by Boeck. It is, however, most probable, that a somewhat altered arrangement may be found convenient in future, as some of the families are far from being well defined.

In the Appendix to the volume some additions and corrections have been given, and some new species described and figured.

During the elaboration of the work, I have had very important assistance in the excellent Report of the «Challenger» Amphipoda by the Rev. Mr. Stebbing, the very complete and elaborated survey of the literature given in that Report having especially been most invaluable to me.

I regret not having had an opportunity of consulting the recently published work of Delle Valle on the Amphipoda of the gulf of Naples. It is most likely that some interesting statements about the geographical distribution of the northern species are to be drawn from this work.

For the exact identification and comparison of arctic species, I am much indebted to Dr. Hansen, who with great liberality has sent me for examination several of the type specimens originally examined by Krøyer, and preserved in the Museum of Copenhagen, as also many other interesting arctic forms described by himself.

I have also to thank the Rev. Mr. Stebbing, Mr. Walker, the Rev. Mr. Norman, Mr. Chevreux, Mr. Schneider, and several other distinguished zoologists for kindly sending me Amphipoda for examination and determination.

My best thanks are also due to the publisher for the readiness with which he has untertaken the publication of such a large work, and for the beautiful manner in which the present Volume has been mounted, both as to type and paper.

October 1894.

G. O. Sars.

AMPHIPODA.

Terminology.

(See Pl. I)[1].

Divisions of Body:

C.	Cephalon	Anterior Division.
Ms.	Mesosome	
Mts	Metasome	Posterior Division.
Us.	Urosome	

Appendages of Cephalon:

a^1.	Superior antennæ (peduncle, flagellum, secondary appendage).	
a^2.	Inferior antennæ (basal joint (b), olfactory spine (ol), peduncle, flagellum).	
L.	Anterior lip (buccal plate, epistome).	Buccal mass.
l.	Posterior lip (lobes, lateral corners).	
M.	Mandibles (body (b), masticatory part, cutting edge (c), molar expansion (m), palp (p)).	
m^1.	First pair of maxillæ (basal part (b), basal lobe (l^1), masticatory lobe (l^2), palp (p)).	
m^2.	Second pair of maxillæ (basal part, inner and outer lobes).	
mp.	Maxillipeds (basal part (b), basal lobes (l^1), masticatory lobes (l^2), palp (p)).	
	(Eyes, Rostrum, Lateral corners).	

Appendages of Mesosome:

p^1.	First pair of legs, or anterior gnathopoda.
p^2.	Second pair of legs, or posterior gnathopoda.
p^3—p^7.	Third to seventh pairs of legs, or first to fifth pairs of pereiopoda.

Joints in all the legs:

1. coxal, 2. basal, 3. ischial, 4. meral, 5. carpal, 6 propodal, 7. terminal, or dactylus.

Appendages to the legs:

br. branchial lamella, i. incubatory lamella.

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[1] The same lettering is used in all the plates to designate the corresponding parts.

Appendages of Metasome:

pl^1.—pl^3. First to third pairs of pleopoda (basal part (b), rami (r)).
(ep^1.—ep^3. First to third pairs of epimeral plates).

Appendages of Urosome:

up^1.—up^3. First to third pairs of uropoda (basal part, rami).
t. Telson.

♀ Female, ♂ Male, ♂ jr. Young male, ♂ ÷ nearly adult male.

Tribe 1.

HYPERIIDEA.

Body short and tumid, or very slender, with thin and pellucid integuments. Cephalon generally large and tumid; mesosome more or less abbreviated, with the coxal plates small and subequal in size; metasome powerfully developed, compressed, with large epimeral plates; urosome depressed, with the 2 outer segments coalesced. Eyes generally enormously developed. Antennæ often imperfect in female, superior ones without any secondary appendage (excepting the genus Hyperiopsis). Oral parts of various structure; maxillipeds without palps, basal lobes coalesced, masticatory lobes divergent, flap-shaped. Gnathopoda not very strong, subsimilar in the two sexes. Pereiopoda of various structure, sometimes very dissimilar. Pleopoda powerfully developed. Uropoda more or less laminar, outer ramus of last pair without any terminal joint. Telson simple. — Parasitic on pelagic animals, especially Medusæ.

Remarks. — This is a rather anomalous division of the Amphipoda, which by most authors has been placed at the close of the order. I think, however, it will be more appropriate to follow Boeck in treating of the present group at the head of the order, placing the typical Amphipoda (Gammaridea) in the midst between this tribe and that of the *Caprellidea,* the latter constituting a far more distinctly degradated type.

Fam. 1. Hyperiidæ.

Cephalon large and deep, almost globular. Eyes occupying the entire lateral walls of the head, visual elements very numerous and elongated, radiating from a central pigmentary mass. Both pairs of antennæ with distinctly triarticulate peduncles, the inferior ones originating each from a large and immobile basal joint, flagellum of both pairs in female comparatively short and non-articulated, in male very slender and elongated, multiarticulate. Epistome not projecting. Anterior lip with a large bilobed buccal plate covering the cutting edges of the mandibles. Posterior lip with the lobes subpedicellated and wide apart. Mandibles rather powerful, with the cutting edge finely denticulated, molar expansion more or less laminar, palp distinct, triarticulate and naked. First pair of maxillæ without any basal lobe, masticatory lobe densely hairy and having a few slender terminal spines, palp lamellar, uniarticulate. Second pair of maxillæ with both lobes densely hairy and terminating in blunt points. Maxillipeds with the terminal lobes more or less crescent-like. Gnathopoda imperfectly subchelate, os complexly chelate. Pereiopoda generally not very dissimilar, basal joint of the 3 posterior pairs rather narrow. Incubatory lamellæ without marginal setæ. Uropoda normal, biramous, rami lanceolate, without spines, but with the edges finely serrated. Telson triangular.

Remarks. — Besides the 4 genera treated of in the following pages and belonging to the Norwegian fauna, Dr. Bovallius enumerates, in his «Systematical list of the Hyperiidea», 5 other exotic genera comprised in the same family, viz., *Iulopis* Bovall., *Tauria* Dana, *Hyperiella* Bovall., *Themistella* Bovall., and *Phronimopsis* Claus. Of the several characters distinguishing the family, the structure of the autennæ in the 2 sexes may be named as the most easily recognisable one. Moreover the form of the cephalon and the structure of the oral parts, partly also that of the pereiopoda, afford well marked differences between this and the other Hyperidean families.

Gen 1. **Hyperia,** Latreille, 1825.

Syn: *Lestrigonus,* M—Edwards = ♂.

Cephalon much more deep than long, somewhat flattened in front. Mesosome greatly inflated in the female, with the back evenly vaulted. Antennæ in female very small, subequal. Mandibles with the molar expansion large and finely fluted transversally, palp of moderate size, with the 2 outer joints subequal in length. First pair of maxillæ with the palp not very expanded, inner corner produced to a tooth-like projection. Maxillipeds with the terminal lobes obtusely pointed, inner edge with small tufts of hair. Gnathopoda scarcely chelate; carpal joint, however, more or less produced inferiorly, especially in the posterior ones. Pereiopoda comparatively short and robust, subequal in length. Uropoda rather broad, with the rami foliaceous. Telson comparatively large.

Remarks. — This genus, which may be considered the type of the family, comprises several species occurring in different parts of the Oceans. Dr. Bovallius enumerates 10 different species, two of which only belong to the Norwegian fauna.

1. **Hyperia galba** (Mont).

(Pl. 2; Pl. 3, fig. 1).

Cancer gammarus galba, Montagu, Linn. Transact. XI, p. 4, pl. 2, fig. 2.
Syn: *Hyperia Latreilli,* M. Edw.,
« *Lestrigonus exulans,* Kröyer = ♂,
« *Hyperia medusarum,* Boeck.

Body of female short and stout, with greatly dilated mesosome, of male considerably more slender and having the metasome much larger than in female. Eye-pigment very narrow reniform, reddish brown. Gnathopoda rather small and only sparingly bristle-beset, carpal joint in both pairs produced, forming in the 2nd pair a narrow process reaching beyond the middle of the propodal joint; the latter attenuated and finely serrated along the inner edge; dactylus of both pairs rather slender and finely denticulated. Pereiopoda almost quite naked. Last pair of uropoda shorter than the urosome, rather broad, especially in the male. Colour pale purplish yellow. Length of female 14 mm, of male 12 mm. Maximum length of arctic specimens, according to Bovallius, 20 mm.

Remarks. — In spite of the opinion supported by Dr. Bovallius, I cannot but believe *Hyperia Latreilli* of M. Edwards to be identical with *H. galba* Mont. The said author, it is true, enumerates some minor differences between the two; but none of them can in my opinion be regarded as strictly specific in character. It may moreover be observed, that the figures he gives of *H. Latreilli* are from a not yet fully adult male, whereas those of *H. galba* are from a quite adult specimen.

Occurrence. — Rather common along the whole coast of Norway, found parasitic on *Aurelia,* often several specimens, males, females and young ones on each Medusa.

Distribution. — Atlantic coasts of France and Britain, the Cattegat, the Baltic, Arctic Ocean: Greenland, Spitsbergen, Novaja Semlja, Kara Sea, the Murman coast.

2. **Hyperia medusarum,** (Müller).

(Pl. 3, fig. 2).

Cancer medusarum, O. Fr. Müller, Zool. dan. prodromus, 2355, p. 148.
Syn: *Hyperia spinipes,* Boeck.

In general habitus very like the preceding species. Eye-pigment however, somewhat larger and broader. Antennæ very small in the female. Gnathopoda considerably larger than in *H. galba* and densely hirsute in their outer part, carpal joint scarcely at all produced in the 1st pair, and but very slightly so in the 2nd, propodal joint in both pairs oval in form, scarcely serrate along the inner edge, but all over densely spinous, dactylus very small. The 2 anterior pairs of pereiopoda having fascicles of short bristles along the posterior edge. Uropoda almost exactly as in *H. galba*. Colour dark purplish brown from numerous pigmentary spots distributed over the whole body as also on the limbs. Length of adult female 15 mm.

Remarks. — I think Dr. Bovallius is right in believing the form described by Boeck under the name of *Hyperia spinipes* to be most likely identical with the *Cancer medusarum* of O. Fr. Müller, and hence the latter specific denomination ought to be retained for the present form. Although in its general habitus very like the preceding species, this form may at once be distinguished, on closer examination, by the rather different form and armature of the gnathopoda, a character which suggested the specific name of *spinipes* proposed by Boeck.

Occurrence. — West coast of Norway, found parasitic on *Cyanea,* occasionally also on *Aurelia,* but less frequently than the preceding species.

Distribution. — Arctic Ocean: Greenland and Spitsbergen.

Gen. 2. **Hyperoche,** Bovallius, 1887.

Syn: *Metoecus* Kröyer, *Tauria* Boeck.

Form of body about as in Hyperia, but with the cephalon somewhat more regularly rounded. Inferior antennæ in female much smaller than the superior ones; both pairs in male greatly elongated. Mandibles with the molar expansion narrow lanceolate and unarmed. First pair of maxillæ having the palp very broad and lamellar. Gnathopoda subsimilar, both distinctly chelate, the carpal joint being produced inferiorly to a compressed knife-like process reaching to the end of, or beyond, the propodal joint, and having the inner edge finely serrate; propodal joint narrow, attenuated, with the inner edge serrate; dactylus rather short. The two anterior pairs of pereiopoda having the carpal joint slightly expanded and compressed; posterior pairs subequal. Uropoda and telson about as in Hyperia.

Remarks. — The generic name *Metoecus* of Kröyer having been employed in Zoology at an earlier date, Dr. Bovallius has proposed a new generic denomination, viz., *Hyperoche.* The same author has likewise shown that the northern form cannot properly be referred to the genus *Tauria* of Dana, as suggested by Boeck. The genus is easily recognised by the peculiar structure of the gnathopoda. Otherwise it comes rather near to Hyperia, though differing also somewhat in the structure of the oral parts. Dr. Bovallius enumerates 5 species of the present genus; but I regard the validity of some of these species rather doubtful. Thus I believe that only a single species is represented in the northern seas, instead of 3, as suggested by that author.

3. **Hyperoche Kröyeri,** Bovallius.

(Pl. 4).

Metoecus medusarum, Kröyer, Grønlands Amphipoder. Danske Vid. Selsk. Afhandl. VII, p. 288, pl. 3, fig. 15.

Syn: *Tauria abyssorum,* Boeck.
» *Hyperoche Lütkeni,* Bovall.

Body of female short and tumid, of male much more slender and compressed. Cephalon rounded in front, eye-pigment triangular. Mesosome with the back rather vaulted; metasome comparatively slender, with the epimeral plates not very large in female. Gnathopoda almost naked, carpal process of both pairs in female advancing beyond the propodal joint, in male somewhat shorter and narrower. Carpal joint of the 2 anterior pairs of pereiopoda having the posterior edge sharpened and minutely denticulated, terminating with a short triangular process; the 3 posterior pairs comparatively short and almost quite naked, with the basal joint rather narrow. Last pair of uropoda with the basal part about twice the length of the telson, in male rather broader than in female. Colour of female light reddish brown, of male more greyish, from numerous dark pigmentary spots. Usual length 5—6 mm. Maximum length of arctic specimens 15 mm.

Remarks. — I believe that Dr. Bovallius is right in rejecting the specific name *medusarum* applied to this species by Kröyer, since the form designated by O. Fabricius as *Oniscus medusarum* in all probability was a true Hyperia and most likely the species described above as *Hyperia medusarum.* On the other hand I cannot coincide with that author in regarding Kröyer's species distinct from *Tauria abyssorum* of Boeck. Nor can I doubt that Dr. Hansen is right in withdrawing the species established by the same author under the name of *Hyperoche Lütkeni,* as synonymous with the typical species described by Kröyer.

Occurrence. — I have met with this form both off the south and west coasts of Norway up to Lofoten, at times near the surface of the sea, at times in greater depths, but always free, not parasitic. No doubt, however, that it in reality leads a parasitic life on Medusæ or some other pelagic animals, as with the species of Hyperia.

Distribution. — Arctic Ocean: Greenland, Labrador, Spitsbergen, the White Sea, the Siberian Polar Sea.

Gen. 3. **Parathemisto,** Boeck, 1870.

Body somewhat compressed, but with the back scarcely carinated. Cephalon irregularly rounded; mesosome moderately vaulted; metasome well developed, with large epimeral plates. Antennæ in female subequal, more elongated than in the preceding genera; in male about as in Hyperia. Anterior lip with a large unequally bilobed buccal plate; posterior lip with the lobes densely ciliated, lateral corners produced. Mandibles rather strong, cutting edge very broad and minutely denticulated, molar expansion rather large, regularly serrate on the edge, palp with the middle joint very elongated. First pair of maxillæ with the palp rather expanded, inner edge denticulated and terminating with a small tooth-like projection. Terminal lobes of the maxillipeds acuminated and beset with scattered long setæ. Gnathopoda densely hirsute and rather dissimilar; 1st pair simple, with the carpal joint rather broad and not produced inferiorly; 2nd pair subchelate, the carpal joint being produced to a narrow process, which does not, however, reach the end of the propodal joint; dactylus of both pairs rather elongated. The 2 anterior pairs of pereiopoda having the carpal joint only slightly dilated; the 3 posterior pairs very slender, subequal, with the carpal and propodal joints, especially the latter, greatly elongated and almost naked. Uropoda more slender than in the preceding genera. Telson comparatively small.

Remarks. — This genus, established by Boeck, is very nearly related to the succeeding one, *Euthemisto,* and ought perhaps to be combined with it. The distinctive characters are chiefly the equal-sized antennæ of the female, the less powerful structure of the 2 anterior pairs of pereiopoda and the uniform development of the 3 posterior ones. Besides the northern species described below, the *Hyperia trigona* of Dana would seem to belong to this genus, as also 2 new species described, the one by Bovallius, the other by the Rev. Stebbing.

4. **Parathemisto oblivia,** (Kröyer).

(Pl 5, fig 1).

Hyperia oblivia, Kröyer, Grønlands Amphipoder, l c. p. 70, pl. 4, fig. 19.

Syn: *Parathemisto abyssorum,* Boeck.

Body moderately slender, with the 1st segment of the mesosome much longer than the 2nd. Cephalon rather large, only slightly more deep than long; eye-pigment oval, very dark. Superior antennæ in female about as long as the cephalon and the 1st segment of the mesosome combined, flagellum only very slightly curved, about three times the length of the peduncle. Gnathopoda with the propodal joint about as long as the carpal one; carpal process of 2nd pair very narrow, reaching beyond the middle of the propodal joint;

dactylus very slender. Carpal joint of the 2 anterior pairs of pereiopoda oblong, with 3—4 slender setæ on the posterior edge. Propodal joint of the 3 posterior pairs very slender, nearly as long as the 3 preceding joints combined; dactylus narrow and elongated. Last pair of uropoda with the basal part about as long as the urosome, inner ramus slightly larger than the outer and about half the length of the basal part. Body pellucid with dark purplish intestine and scattered pigmentary spots of same colour. Usual length 10 mm. Maximum length of arctic specimens 17 mm.

Remarks. — Although the description and figures given by Kröyer of his *Hyperia oblivia* are rather incomplete, I cannot doubt that they refer to the present species, which moreover is stated by Dr. Hansen to occur off the coast of Greenland, whence Kröyer procured his specimens. From *P. trigona* of Dana it would seem to differ, among other characters, by the much more slender and narrow form of the propodal joint of the 3 posterior pairs of pereiopoda.

Occurrence. — I have repeatedly taken this form in great number on the west coast of Norway up to Finmark, and generally in great depths, from 100 to 200 fathoms. A much smaller form, scarcely exceeding 5 mm in length but otherwise wholly agreeing with the typical species, I have met with in less depth and occasionally even near the surface of the sea. On the other hand specimens collected on the Norwegian North-Atlantic Expedition reach the considerable length of 17 mm. All the specimens were taken either by the dredge or by a surface-net fixed to the dredge-rope.

Distribution. — British Islands (Sp. Bate), south coast of Greenland (Kröyer, Hansen), several Stations of the Norwegian North-Atlantic Expedition from Lat. 63° to 71° (off Jan Mayen).

Gen. 4. **Euthemisto,** Bovallius, 1887.

Syn: *Themisto,* Guérin, 1828.

Body very slender and compressed, often distinctly carinated dorsally. Cephalon irregularly rounded. Superior antennæ in female shorter than the inferior ones and having the flagellum more or less curved. Oral parts almost exactly as in Parathemisto. Gnathopoda likewise of a very similar structure, but the carpal process of the 2nd pair generally larger, and the dactylus shorter. The two anterior pairs of pereiopoda rather powerful, with the carpal joint greatly dilated, propodal joint slender and admitting of being bent in against the former. Third pair of pereiopoda greatly produced and generally much longer than the 2 succeeding pairs, having the carpal and propodal joints very elongated and the latter often peculiarly denticulated, whereas the meral joint is much abbreviated. Uropoda rather slender. Telson small, triangular.

Remarks. — As mentioned above, this genus is very nearly related to the preceding one, scarcely differing except in the mutual longitudinal relation of the pereiopoda and in the powerful structure of the 2 anterior pairs. The usual known generic denomination, *Themisto,* has been changed by Dr. Bovallius to *Euthemisto,* because the former name was employed in Zoology anterior to 1828. The genus is represented both in the antarctic and arctic Oceans. Dr. Bovallius enumerates 6 species, one of which, however *E. Nordenskjöldi* Bovall., has been withdrawn by Dr. Hansen as most probably only founded on immature specimens of *E. libellula,* (Mandt). No less than 3 different species belong to the Norwegian fauna.

5. **Euthemisto compressa,** (Goës).

(Pl. 5, fig. 2).

Themisto compressa, Goës, Øfvers. af Kgl. Svenska Vetensk. Akad. førhandl. 1865, p. 533, pl. 41, fig. 34.

Syn: ? *Euthemisto bispinosa,* Bovall., not Boeck.

Body moderately slender and highly compressed, back distinctly carinated and forming on the posterior segments of the mesosome and the anterior ones of the metasome sharp recurved processes. Cephalon, as seen laterally, rounded triangular, more deep than long; eye-pigment of moderate size, oval. Superior antennæ in female about the length of the cephalon, flagellum strongly curved and denticulated on the posterior edge. Posterior gnathopoda with the carpal process almost reaching the tip of the propodal joint, dactylus scarcely more than half the length of the latter joint. Carpal joint of the 2 anterior pairs of pereiopoda regularly oval, broadest in the middle, with rather short and unequal bristles on the posterior edge. Third pair of pereiopoda only slightly exceeding in length the 2 succeding ones, basal joint not expanded, propodal joint very slender and about the length of the 3 preceding joints combined, anterior edge very minutely denticulated throughout and provided at regular intervals with about 10 slender bristles; dactylus rather elongate, unarmed. Posterior pair of uropoda nearly twice the length of the urosome, outer ramus much shorter than inner. Body pellucid, with dark intestine and scattered purplish pigmentary spots on the posterior division of the body. Usual length 12 mm. Maximum length of arctic specimens, according to Bovallius, 30 mm. (?).

Remarks. — Boeck has referred this form to the genus *Parathemisto*, because in the figure given by Goës the 3 posterior pairs of pereiopoda are represented as being of uniform length. In reality, however, the 3d pair are, at least in full-grown specimens, distinctly longer than the 2 succeeding ones, although the difference in this species is not nearly so great as in the 2 succeeding species. Moreover the powerful structure of the 2 anterior pairs of pereiopoda, as also the mutual length of the antennæ, shows this form to be a true *Euthemisto*. As to the form named by Dr. Bovallius *E. bispinosa* Boeck, at least the habitus-figure given would seem more properly to relate to the present than to Boeck's species.

Occurrence. — Off the coast of Norway I have only observed this form in a single locality, viz., at Hasvig in west Finmark. It occurred here rather sparingly in deep water together with *Parathemisto oblivia.*

Distribution. — Arctic Ocean: Davis strait, east coast of Greenland, Jan Mayen at Stat. 225 of the Norwegian North Atlantic Expedition.

6. **Euthemisto libellula,** (Mandt).

(Pl. 6, fig. 1).

Gammarus libellula, Mandt, Observationes in Historiam naturalem et Anatomiam comparatam in itinere grønlandico factæ, p. 32.

Syn: *Themisto arctica,* Krøyer.

Body very slender, with the back rounded, not carinated. Cephalon scarcely more deep than long, obliquely rounded in front; eye-pigment rather large, obliquely oval. Superior antennæ with the flagellum scarcely curved. Gnathopoda having the propodal joint shorter than the carpal one, carpal process of the 2nd pair nearly reaching the tip of the propodal joint, dactylus very small. Carpal joint of the 2 anterior pairs of pereiopoda broadly ovate, slightly expanded towards the extremity and provided, on the posterior edge, with a regular series of rather elongated setæ. Third pair of pereiopoda very elongated, basal joint expanded, with the anterior edge bulging out on the middle and provided with short bristles, propodal joint about the length of the carpal, anterior edge with a regular series of rather strong setæ placed at regular intervals and increasing in length towards the extremity, outer part of the edge densely spinulous, dactylus slightly flexuous, with a dense tuft of fine spinules at the base. Urosome very slender, about half the length of the metasome. Uropoda likewise very slender, rami of the last pair subequal in length. Body densely ornamented with dark purplish pigmentary spots, intestine dark bluish. Length of adult specimens 45 mm. Maximum length of arctic specimens, according to Bovallius, 60 mm.

Remarks. — This gigantic species is easily distinguished from the two other northern forms by the rounded, not carinated, back, the very slender urosome, and by the dactyli of the pereiopoda, especially those of the 3d pair, being densely spinulous at the base. In all these points the form named by Bovallius *E. Nordenskjöldi* agrees with the present species, from which it can hardly be specifically distinguished.

Occurrence. — Occasionally this form may be found in large shoals at the north and east coast of Finmark, swimming near the surface of the sea; but generally only young specimens are met with. The figure here given is from a specimen procured on the Norwegian North Atlantic Expedition.

Distribution. — Arctic Ocean, widely distributed: Greenland, Spitsbergen, Jan Mayen, Novaja Semlja, Siberian Polar Sea, numerous stations of the Norwegian North-Atlantic Expedition, both in deep water and at the surface of the sea.

7. **Euthemisto bispinosa**, (Boeck).

(Pl. 6, fig. 2).

Themisto bispinosa, Boeck, Crust. Amphip. borealia et arctica, p. 8.

Body rather slender, with the back carinated, the 2 last segments of the mesosome forming distinct retrovergent dorsal processes. Cephalon nearly twice as deep as long, obtusely truncated in front; eye-pigment rather narrow, almost crescent-like. Superior antennæ scarcely longer than the cephalon, flagellum minutely denticulated on the posterior edge and having the extremity distinctly curved. Posterior gnathopoda with the carpal process not nearly reaching the tip of the propodal joint; dactylus comparatively small. Carpal joint of the 2 anterior pairs of pereiopoda irregularly ovate, somewhat tapering in the outer part and fringed with comparatively short and unequal bristles. Third pair of pereiopoda exceedingly elongate and slender, basal joint less expanded than in *E. libellula*, propodal joint very narrow, much longer than the carpal joint and quite straight, anterior edge with only a few small setæ in the middle, outer part regularly pectinate, the spinules gradually increasing in length towards the tip of the joint; dactylus very small and unarmed. Last pair of uropoda about twice the length of the urosome, outer ramus much smaller than inner. Telson rather small. Body pellucid, with dark purplish intestine, and ornamented with scattered stellate pigmentary spots, especially on the posterior division. Length of adult specimens 15 mm. Maximum length of arctic specimens, according to Boeck 25 mm.

Remarks. — In some characteristics, e. g., in the carinated back and the structure of the antennæ, this species shows a perplexing resemblance to *E. compressa* (Goës), and on this account the two species would seem to have been confounded both by Boeck and Bovallius. On closer examination, the present species is, however, easily distinguished by the exceedingly elongate and slender form of the 3rd pair of pereiopoda, and more especially by the peculiar armature of the propodal joint of these legs. It may be observed that this character is also quite distinct in very young specimens, whereas in these the dorsal processes are very inconspicuous or nearly quite obsolete.

Occurrence. — Of this form I have taken a few adult and several young specimens at Sorvær and Hasvig in west Finmark, together with *E. compressa* and *Parathemisto oblivia.*

Distribution. — Arctic Ocean: Greenland, Spitsbergen (?); off Nova Scotia (Stebbing).

Fam. 2. Lycæidæ.

Cephalon large, subglobular, canaliculated inferiorly. Eyes enormous, occupying the entire lateral walls of the head. Antennæ originating from the inferior side of the cephalon, very dissimilar; 1st pair rather small, with short uniarticulated peduncle (in female), flagellum rather dissimilar in the two sexes; 2nd pair imperfectly developed in female, very large in male and folded up beneath the cephalon. Oral parts more or less imperfectly developed. Gnathopoda simple, or complexly subchelate. The 3 posterior pair of pereiopoda with the basal joint more or less expanded, last pair generally very small. Incubatory lamellæ without marginal setæ. Pleopoda very powerful. Uropoda normal. Telson triangular.

Remarks. — This family is synonymous with the family *Tryphænidæ* of Boeck and Bovallius. I have, however, seen fit to change the name, because, according to the rules of Zoology, the denomination of a family ought to be derived from the genus first established, and as the genus *Lycæa* of Dana undoubtedly belong to the same family as the genus *Tryphæna* of Boeck, the family must of course be named after the former genus, which is by far the older one. According to the restrictions of Dr. Bovallius, the family comprises, besides the 2 above mentioned genera, 5 others, viz., *Thamyris* Sp. Bate, *Thamneus* Bovall., *Paralycæa* Claus, *Pseudolycæa* Claus and *Simorhynchus* Claus. The family is mainly represented in the tropical part of the Oceans, the genus *Tryphæna* being the only northern representative.

Gen. 5. **Tryphæna,** Boeck, 1870.

Body comparatively short and stout, with rounded, not carinated back. Cephalon much deeper than the body, slightly produced in front, inferior side deeply canaliculated. Mesosome more or less abbreviated, metasome greatly developed, urosome comparatively short and depressed. First pair of antennæ originating from the inferior side of the head in front, and admitting of being reflexed within the deep ventral furrow; flagellum triarticulate, 1st joint in female rather short, in male globularly expanded and bearing a dense tuft of sensory hairs at the posterior edge, 2nd joint linear with a few sensory appendages near the tip, in male rather narrow and produced inferiorly to a spiniform process, last joint in both sexes narrow styliform. Second pair of antennæ fixed, at a great distance from the 1st pair, to the infero-lateral corners of the cephalon; in female very small and immobile, triarticulate, 2nd joint laminar, terminal one minute, scale-like; in male very large, peduncle 4-articulate, the 2 outer joints slender and angularly bent, flagellum very narrow filiform, indistinctly articulate and likewise angularly bent. Anterior lip triangular, with a very short, slightly emarginated buccal plate; posterior lip wanting. Mandibles without any molar expansion, palp naked, biarticulate (in female). Both pairs of maxillæ forming simple narrow plates without any armature. Maxillipeds large, operculiform; terminal lobes short and broad, crescent-like, unarmed. Gnathopoda small, not chelate; 1st pair with the basal joint very large, lamellar, dactylus spiniform, immobile; 2nd pair rather slender, dactylus densely hairy and terminating with a kind of sensory apparatus (?). Pereiopoda almost naked, 3rd pair the largest, last pair very small. Uropoda comparatively short, with broadly lonceolate rami. Telson large, triangular.

Remarks. — Owing to the generally very imperfect investigation of Hyperids by Dana and earlier authors, Boeck has failed to recognise the near relationship of his genus *Tryphæna* to the genus *Lycæa* of Dana. In fact, the only essential difference between the two would seem to consist in a slightly different structure of the gnathopoda, and hence I thought it right, in the 1st part of my «Oversigt af Norges Crustaceer», to refer Boeck's species to the said genus. Meanwhile Dr. Bovalius has recently maintained the distinctness of Boeck's genus, though referring the genus *Lycæa* to the same family, and as that author has made the Hyperids his special study, I do not feel at present entitled to dissent from his opinion on this point. In the restricted sense in which the genus is taken by Bovallius, it only contains a single species, for the *T. Nordenskjöldi* is quite certainly not specifically distinct.

8. **Tryphæna Malmi,** Boeck.

(Pl. 7).

?*Tryphana Malmi,* Boeck, Crust. Amphip. borealia et arctica, p. 9.
Syn: *T. Nordenskjöldi,* Bovall. = ♂.
» *T. Boecki,* Stebbing = ♂.

Cephalon about half the length of the mesosome, front in female obtusely rounded, in male angularly produced; ocular pigment rounded oval in male somewhat narrowed dorsally. Mesosome not very tumid, nearly as long as the metasome. First pair of antennæ with the 2nd joint of the flagellum in female linear compressed and about the length of the peduncle and 1st joint of the flagellum combined, obliquely truncated at the extremity and bearing 4 sensory appendages; in male much narrower and ciliated on the posterior edge, the spiniform process about as long as the terminal joint, the latter in both sexes scarcely longer than the sensory appendages. Anterior gnathopoda with the basal joint about as long as the remainder part of the leg, propodal joint compressed oval, bearing a short spine on either edge, and produced at the tip, beneath the dactylus, to a short tooth-like process. Posterior gnathopoda more slender than the anterior ones, outer part very hairy, propodal joint narrow and as long as the dactylus. All the pereiopoda, saving the last pair, having the propodal joint produced at the tip beneath the dactylus to a short tooth-like process; 3rd pair about as long as the mesosome. Basal joint of the 2 posterior pairs of pereiopoda considerably more expanded in male than in female. Urosome about as long as the last segment of the metasome, rami of the uropoda subequal. Telson in male somewhat larger than in female, slightly exceeding the basal part of the last pair of uropoda. Colour more or less reddish, speckled with small purplish pigmentary spots. Length of adult female 5 mm, of male 6 mm.

Remarks. — The habitus-figure of the female given by Boeck in his work on the Scandinavian Amphipoda is very bad and misshaped, and this may have been the cause why Dr. Bovallius could not recognise the specimen examined by him as the male of T. Malmi. True, the sexual differences in this form are rather striking, not only as regards the structure of the antennæ, but also in several other points; but on a closer comparative examination of both sexes, their specific identity cannot be misunderstood. The form described by the Rev. Stebbing from the Challenger Expedition as *T. Boecki* does not seem to differ in any essential manner from male specimens of the present species.

Occurrence. — I have found this interesting form in three different localities on the west coast of Norway, viz., at Folgerø and Sunde in Søndhordland, and in the Foldenfjord at Apelvær. In all 3 places it was procured by the dredge from comparatively great depths, 80—200 fms. Boeck collected his specimens likewise at a considerable depth in the outer part of the Hardangerfjord, at Lyngholmen.

Distribution. — Off the Færo Islands at Lat. 65° N. (Bovallius); North Atlantic at Lat. 18° 8′ N. (Stebbing).

Fam. 3. Scinidæ.

Cephalon small, not tumeficated. Eyes very minute. Superior antennæ rather large, straight, styliform, divergent, similar in the two sexes; inferior antennæ in female quite rudimentary, in male very slender and angularly bent. Mandibles without palps. Maxillæ well developed. Maxillipeds with lanceolate terminal lobes. Gnathopoda simple, not subchelate. Pereiopoda very slender, the 3 posterior pairs rather unequal, with narrow basal joints, last pair the smallest. Metasome in female not very powerful, epimeral plates small. Urosome depressed. Uropoda imperfectly developed, more or less sword-shaped. Telson very minute.

Remarks. — This is a very anomalous group of Hyperids, differing from the typical forms in many respects, among others by the very small eyes and the less powerful development of the metasome. The structure of the oral parts and of the urosome is, however, evidently Hyperidean in character. The family comprises as yet but a single genus.

Gen. 6. Scina, Prestandrea, 1833.

Syn: *Tyro,* M. Edw., 1840.
» *Clydonia,* Dana, 1852.

Body in female rather tumid, attenuated posteriorly. Cephalon truncated in front, scarcely deeper than the body. Mesosome rather large, with broad vaulted back, metasome compressed. Eyes located at the infero-lateral corners of the cephalon in projecting tuberculiform prominences, visual elements normal, very few in number. Superior antennæ consisting of a short and thick, uniarticulate peduncle and a large styliform, biarticulate flagellum, the terminal joint of which is very small. Inferior antennæ in female biarticulate, originating from a large basal joint completely anchylosed with the cephalon, proximal joint very small, distal one thread-like; in male rather elongated, with distinctly 4-articulate peduncle and filiform multiarticulate flagellum. Anterior lip very small, without any buccal plate; epistome slightly projecting, carinated. Posterior lip wanting. Mandibles with the masticatory part simple laminar, without any armature. First pair of maxillæ with the basal lobe distinctly developed though nearly bare, masticatory lobe without spines but divided at the tip in a few acuminated projections, palp lamellar, uniarticulate. Second pair of maxillæ with both lobes acuminated and strongly inflexed, without setæ but finely hairy, the exterior provided with a short lateral tooth. Maxillipeds with the basal part rather small, the terminal lobes very thin, foliaceous and exserted to a narrow point. Gnathopoda slender, subequal, densely hairy in the outer part. Pereiopoda very slender and nearly naked; 3rd pair the longest and generally angularly bent, basal joint very elongated and having the one or both edges strongly serrate, propodal joint and dactylus very small. Last pair much smaller than the rest. The 2 segments of the urosome very sharply defined. Last pair of uropoda with a short lateral ramus exteriorly, the others simple, with the peduncle not defined. Telson extremely small.

Remarks. — Dr. Bovallius has been the first to call attention to the fact, that the genus *Clydonia* of Dana is in all probability identical with the genus *Tyro* established by Milne Edwards at a much earlier date, and hence has proposed to restore the latter name as the elder one for the genus and to name the family accordingly *Tyronidæ,* instead af *Clydoniidæ.* As recently shown by the Rev. Stebbing there is, however, a still older name, which of course ought to be preferred to that of M. Edwards, viz the denomination *Scina,* proposed by Prestandrea as early as 1833 for a form, which evidently is congeneric with that described by Milne Edwards, and accordingly the name of the family must be changes to *Scinidæ.* The genus comprises, according to Dr. Bovallius, no less than 10 different species, distributed in different parts of the Atlantic, the Pacific and the Mediterranean. In the northern Ocean it is only represented by a single species, occurring on the coast of Norway.

9. **Scina borealis**, G. O. Sars.

(Pl. 8).

Clydonia borealis, G. O. Sars, Oversigt af Norges Crustaceer I, p. 75, pl. 3 fig. 1.

Cephalon more deep than long, with a pair of small tuberculiform projections just above the insertions of the superior antennæ. The latter about half as long as the body, excepting the urosome; proximal joint of the flagellum serrated at both edges, more minutely at the superior one, its basal portion somewhat more incrassated in the male than in the female and densely hairy. Inferior antennæ in male about as long as the body, last joint of the peduncle very elongated, flagellum 5—6-articulate. Propodal joint of 1st pair of gnathopoda shorter than the carpal joint, that of 2nd pair about as long as the latter. Third pair of pereiopoda longer than the 4th; basal joint serrated on both edges and jutting out at the end as an acuminated process overhanging the ischial joint, propodal joint about half as long as the carpal one. Last pair of pereiopoda scarcely half as long as the penultimate one, basal joint about the length of the remainder part of the leg. First pair of uropoda strongly denticulated on the inner edge, exterior ramus both in this and the succeeding pair obsolete, that of the last pair about as long as the basal portion. Telson acutely triangular. Body very pellucid, with light red intestine and oral region, and with scattered reddish pigmentary spots on the posterior division. Length 8 mm.

Remarks. — The species established by Dr. Bovallius under the name of *Tyro Clausi* is very nearly related to, if not identical with, the present species, only differing by the 3rd pair of pereiopoda being somewhat shorter and by the poor development of the propodal joint of these legs. In all other respects, and especially in the structure of the urosome, with its several appendages, it agrees exactly with the northern form.

Occurrence. — I first detected this interesting Hyperid many years ago at Lofoten. It occurred here only at very great depths from 200 to 300 fs. Subsequently I have met with this form also in two other localities on our coast, viz., in the outer part of the Drontheimsfjord at Bejan, and in the Christianiafjord at Hanko. Here also it was only procured from comparatively great depths (100—150 fs.) by the aid of the dredge or a fine hand-net fixed to the dredge rope at a short distance from the dredge.

Tribe 2.

GAMMARIDEA.

Remarks. — This tribe comprises the ordinary or typical Amphipoda and constitutes by far the greater part of that order. Of course it must be divided into numerous subordinate groups, which however, do not bear exactly the same systematical relation to each other. Owing to the latter circumstance, some of the later authors, for instance Boeck, only admit a very restricted number of true families, whereas some of the latter, and especially the family *Gammaridæ,* have been again divided into numerous sub-families. As there, however, is far from being full concord among the authors about the limits of the several families and sub-families established, I think it will be at present more suitable to avoid such a complicated classification and to restrict ourselves to a subdivision of the tribe into a number of families only, remembering, however, that some of these families are rather nearly related, while others are more sharply defined.

Fam. 1. Orchestiidæ.

Body now rather tumid, now more or less compressed, with the metasome and urosome comparatively short and stout. Coxal plates rather large, the 4th pair not emarginated posteriorly, 5th pair deeply bilobed. Cephalon truncated anteriorly and having the buccal mass greatly projecting inferiorly. Eyes comparatively small and situated near the dorsal face of the cephalon. Superior antenna generally very much shorter than the inferior and without any accessory appendage. Inferior antennæ more or less pediform, peduncle rather elongated and having its basal joint coalesced with the cephalon. Anterior lip large, rounded; epistome applanated. Posterior lip membranous, with projecting lateral corners. Mandibles without palps, very powerful, cutting edge divided into two superposed lamellæ which are strongly denticulated on the edges, molar expansion large and thick; between both a series of curved setæ.

First pair of maxillæ with the palp obsolete, or nearly so, masticatory lobe well developed and furnished at the tip with several strong denticulated spines, basal lobe very narrow, with 2 short and densely ciliated curved setæ at the tip. Second pair of maxillæ with the lobes rather broad and densely setiferous on the inner edge. Maxillipeds having the masticatory lobes very small and rounded, basal lobes much larger and armed at the tip with short teeth and bristles; palp rather large, with the joints complanated and short hairy at the edges. Gnathopoda of various structure in the several genera, 2nd pair more generally very different in the two sexes. Pereiopoda rather strong, edged with tufts of short spines, the 3 posterior pairs successively increasing in length and having the basal joint broad and laminar. Branchial lamellæ generally very small and vesicular in form. Pleopoda poorly developed. The 2 first pairs of uropoda strong, with both rami, as also the basal part, denticulated; last pair very small, with only a single minute ramus. Telson short and thick.

Remarks. — This is a rather distinct family, which even by Milne-Edwards and other authors has been elevated to the rank of a tribe (Saltatoria). It comprises a number of Gammaridea, which more or less have adapted themselves to a terrestrial life and in accordance therewith exhibit some particular characters not found in other Amphipoda. Moreover their mode of progression, when out of water, is very peculiar and is effected by quick leaps or abrupt hops. Besides the 3 genera described below and belonging to the Norwegian fauna, two other exotic genera have been established, viz, *Orchestoidea* Nicolet and *Tallorchestia* Dana, both of which seem to be nearest related to the genus *Orchestia.*

Gen 1. **Talitrus,** Latreille, 1802.

Body less compressed, with broadly rounded back. First pair of coxal plates smaller than the 2nd, 5th pair rather large, regularly bilobed. Superior antennæ very small, much shorter than the peduncle of the inferior; the latter elongated, subpediform, much stronger in male than in female, the 2 basal joints more or less completely coalesced with the cephalon; no olfactory spine. First pair of maxillæ with only a slight rudiment of a palp. Maxillipeds with the palp rather short and broad, terminal joint, or dactylus, quite wanting. Anterior gnathopoda simple, not subcheliform, somewhat stronger in male, carpal joint elongated and linear in form. Posterior gnathopoda in both sexes of similar structure, rather feeble and almost bare, terminating with an imperfectly cheliform hand, the dactylus being quite rudimentary. Branchial lamellæ very small. Incubatory lamellæ likewise small, lanceolate, with only few marginal setæ. Telson rather broad, rounded at the tip.

Remarks. — The present genus is chiefly distinguished from *Orchestia* by the anterior gnathopoda being simple, not subcheliform, and the posterior ones being exactly alike in the two sexes; moreover by the less compressed form of the body. It comprises only a few species, the validity of which would moreover seem to be rather doubtful.

1. **Talitrus locusta** (Pallas).

(Pl. 9).

Oniscus locusta, Pallas, Specil. Zool. fasc. 9, tab. 4, fig. 7.

Syn: *Talitrus saltator* (Mont.), Edw.

Body comparatively short and robust, with the coxal plates scarcely as deep as the mesosome, 1st pair triangular, more or less covered by the 2nd; 5th pair nearly as deep as the preceding ones. Cephalon rather deep, transversely truncated in front, with the buccal mass greatly projecting. Eyes comparatively small, rounded, with black pigment. Superior antennæ scarcely reaching beyond the penultimate joint of the peduncle of the inferior, flagellum much shorter than the peduncle, 7—8-articulate. Inferior antennæ in female about three times the length of the superior, with the last joint of the peduncle as long as the two preceding ones combined, flagellum about the length of the peduncle; in male much stronger, sometimes nearly as long as the whole body. Anterior gnathopoda with the propodal joint scarcely more than half the length of the carpal and slightly tapering distally. Pleopoda with the basal part about the length of the rami and beset on the outer edge with slender spines. Last pair of uropoda with the ramus nearly as long as the basal part and bearing a single slender spine at the tip and several short ones on the outer edge. Telson nearly twice as broad as it is long, with bunches of small spines dorsally. Colour, when alive, light greyish white, with dark bluish markings on the back. Usual length of adult male 16 mm; that of female somewhat less.

Remarks. — Although the description and figure given by Pallas of his *Oniscus locusta* is very imperfect, there is all reason to believe, that he has had this form before himself and according to the rules of priority his specific name *locusta* ought therefore to be preferred to that of *saltator* proposed by Montagu.

Occurrence. — I have met with this form rather plentyfully on the sandy beaches of Lister, on the south coast of Norway, where it occurred near the level of spring tide highwater mark, beneath old sea-weed. Boeck has collected it under similar conditions on the shores of Karmö, and several specimens are preserved in our university Museum, brought home by the late professor Rasch, probably from the district of Christiansund. It is a very active animal, being enabled to jump away by very quick and abrupt leaps, so that it is only to be caught with great difficulty.

Distribution. — Atlantic coast of Europe: Denmark, British Islands, France; Mediterranean; coast of Algiers (Chevreux); Azores (Barrois).

Gen. 2. **Orchestia,** Leach, 1814.

Body more slender and compressed than in Talitrus. First pair of coxal plates rather small; 5th pair almost as deep as the preceding and deeply bilobed. Cephalon, antennæ and oral parts almost exactly as in Talitrus. Anterior gnathopoda small, subcheliform in both sexes, the propodos having a distinctly defined palmar border. Posterior gnathopoda very dissimilar in the two sexes, in female about as in Talitrus, in male very strongly developed, terminating with a very large and powerful subcheliform hand. Pereiopoda about as in Talitrus, but the last pair somewhat more elongated and often peculiarly modified in the male. Branchial lamellæ small. Incubatory lamellæ of the same structure as in Talitrus, but considerably larger. Appendages of metasome and urosome almost as in the latter genus.

Remarks. — This genus is chiefly distinguished from *Talitrus* by the structure of the gnathopoda, the 1st pair of which, instead of being simple, are subcheliform in both sexes, whereas the 2nd pair show a very unequal development in the two sexes. The genus is widely distributed and comprises numerous species, which in their habits closely resemble the Talitri, being evidently terrestrial in character. In Norway only a single species has hitherto been recorded.

2. **Orchestia littorea,** (Mont).

(Pl. 10).

Cancer (Gammarus) littoreus, Montague, Linn. Trans. IX, p. 96, Pl. 4, fig. 4.
Syn: *Tailtrus tripudians,* Kröyer,
« *Orchestia Euchore,* F. Müller.

Body rather slender, with the back evenly rounded throughout. Cephalon scarcely longer than the 1st segment of the mesosome. First pair of coxal plates triangular, much smaller than the 2nd and partly covered by the same; 5th pair having the anterior lobe somewhat larger than the posterior. Eyes irregulary rounded, black. Superior antennæ scarcely reaching beyond the penultimate joint of the peduncle of the inferior, flagellum 7—8-articulate. Inferior antennæ about ¹/₃ as long as the body, somewhat stronger in male than in female. Anterior gnathopoda having the propodos shorter than the carpus, in female oblong quadrangular, with the palm transversely truncated, in male dilated at the tip, with the palm rounded. Posterior gnathopoda in male having the propodos very large, oval, dilated distally, palm transversely arcuate and defined below by an obtuse projection. Last pair of pereiopoda in male with the meral and carpal joints greatly dilated, the former triangular, the latter rounded quadrangular. Pleopoda with the basal part much longer than the rami and quite bare. Last pair of uropoda with the ramus very small and narrow, scarcely half as long as the basal part. Telson about as long as it is broad, very slightly emarginated at the tip. Colour of female uniform greenish, of male yellowish with brown transversal bands. Length of female 15 mm., of male 17 mm.

Remarks. — Boeck has identified this species with the *Oniscus gammarellus* of Pallas and accordingly named the species *Orchestia gammarellus.* As there, however, are several nearly related species of the present genus, and it is impossible from the imperfect description and figure given by Pallas to decide with certainty, what species he has observed, I think it will be best to retain the specific name proposed by Montagu. The present species may be best known from the related forms by the structure of the posterior gnathopoda in the male, partly also by the peculiar development of the last pair of pereiopoda of the same.

Occurrence. — This is one of our most common Amphipoda, occurring in considerable numbers along the shores of the whole south and west coast of Norway, at least up to the Trondhjemsfjord. It is met with, as the Talitri, beneath old sea-weed at high water mark, and moves about in a quite similar hopping manner. While, however, the Talitri seem to be confined to sandy beaches, this form may very often also be collected on the rocky shores, and in the crevices between stones, hiding itself with great dexterity within the muddy deposit when disturbed.

Distribution. — Denmark, the Baltic, Belgium, British Islands, France, Mediterranean, the Black Sea (Czerniavsky), coast of Algiers (Chevreux), Madeira (Morelet), Azores (Barrois).

Gen. 3. **Hyale,** Rathke, 1837.

Syn: *Allorchestes,* Dana = ♂,
« *Nicea,* Nicolet = ♀.

Body greatly compressed, but with the back rounded. The 4 anterior pairs of coxal plates rather deep and subequale in size, the 3 posterior ones much lower. Superior antennæ longer than the peduncle of the inferior, the latter somewhat stronger in male than in female. Oral parts on the whole rather similar in structure to those in the 2 preceding genera, saving that the 1st pair of maxillæ has a distinct though very small and narrow palp, and that the palp of the maxillipeds consists of the normal number of joints. Both pairs of gnathopoda subcheliform, in female nearly subequal, in male very unequal, the posterior ones being much stronger and terminating with a very large and powerful hand. Branchial lamellæ of normal structure, though rather small. Incubatory lamellæ very large and broad, with the edges densely ciliated. Pleopoda somewhat larger than in the 2 preceding genera and having the natatory setæ plumose. Uropoda about as in Orchestia. Telson small, unarmed, cleft to the base.

Remarks. — It is evident that Boeck was right in uniting the two genera *Allorchestes* Dana and *Nicea* Nicolet, as only founded on sexual characters, and likewise in stating both to be merely synonymous to the genus *Hyale* of Rathke. In several characters this genus would seem to form a connecting link between the «Saltatoria» and «Natantia» of earlier authors, and the species are also in their habits not so evidently terrestrial as those belonging to the 2 previously mentioned genera. The genus comprises numerous species occurring, it would seem, in all parts of the world. Two distinct species belong to the Norwegian fauna.

3. **Hyale Nilssoni,** (Rathke).

(Pl 11, fig 1).

Amphithoe Nilssoni, Rathke, Acta Acad. Leop. T. XX, p. 264.

Syn: *Amphithoe Prevosti,* Rathke,
« *Orchestia nidrosiensis,* Kröyer.

Segments of body not very sharply demarcated from each other, the back being quite evenly vaulted. Cephalon longer than the 1st segment of the mesosome, lateral corners slightly projecting between the bases of the antennæ. First pair of coxal plates scarcely smaller than the 3 succeeding ones, the latter somewhat deeper than the body and rounded inferiorly, 5th pair much lower than the preceding ones, anterior lobe much the larger.

Eyes small, circular. Superior antennæ in female nearly as long as the inferior, flagellum longer than the peduncle, 6-articulate; in male only slightly reaching beyond the peduncle of the latter. Posterior gnathopoda in female a little larger than the anterior, propodos of both pairs about as long as the 2 preceding joints combined, elongated quadrangular, palm transversely truncated and defined below by an almost right angle. Anterior gnathopoda in male having the propodos somewhat broader than in female, with the palm evenly curved; posterior ones very largely developed, propodos oval, scarcely tapering, palm obliquely arcuate and defined below by an obtuse projection. Propodal joint of the pereiopoda scarcely dilated, having tufts of small spines on the inner edge, dactylus comparatively small. Last pair of uropoda with the ramus scarcely more than half as long as the basal part and terminating with a tuft of short spines. Telson about twice as broad as it is long, lobes nacked and angular in form. Colour greenish. Length of adult female 6—7 mm, of male 8 mm.

Remarks. — As pointed out by the Rev. Mr. Stebbing, Boeck has erroneously confounded this and the following species. The habitus-figure of the female given by that author as also the figure of the 2nd gnathopoda of the male, undoubtedly refer not to Rathke's species but to the form described below as *H. lubbockiana.* From that species the present form is easily known by the different structure of the gnathopoda, as also by that of the terminal part of the pereiopoda.

Occurrence. — The present species would seem to occur along the whole coast of Norway, from the Christianiafjord up to Vardo, where it has been recently found by Mr. Schneider, curator of the Tromso Museum. I have myself taken it in several places on our west coast, near ordinary tide-mark, between sea-weed. It is very active and, when out of water, has a similar power of making abrupt leaps as the Talitri and Orchestiæ.

Distribution. — Atlantic coast of Europe: Bohuslehn, Denmark, British Islands, France; Adriatic (Heller); Azores (Barrois).

4. **Hyale lubbockiana,** (Sp. Bate).

(Pl. 11; fig. 2).

Nicea lubbockiana, Sp. Bate, Cat. Amphip. Brit. Museum, p. 51, Pl. VIII, fig. 3.
Syn: *Allorchestes imbricatus,* Sp. Bate = ♂,
« « *Hyale Nilssoni* Boeck (part).

Segments of body rather sharply demarcated from each other, giving the back a subimbricated appearance. Integuments on the whole much firmer than in H. Nilssoni, the edges of the coxal plates thickened and slightly crenulated.

Antennæ somwhat more robust, but otherwise rather similar. Gnathopoda of female having the propodos comparatively larger, much longer than the 2 preceding joints combined, oblong oval in form, with the palm very oblique and less distinctly defined below; 2nd pair in male with the propodos oblong in form, distinctly tapering toward the tip. Pereiopoda very robust, edged with scattered small spines, propodal joint, especially of the 3 posterior pairs, considerably dilated and armed on the anterior edge below the middle with 2 unusually strong serrated spines, dactylus very powerful, falciform curvate. Colour yellowish. Length of female 7 mm.

Remarks. — This is evidently a well marked species, differing very decidedly from the typical form by the peculiar imbricated appearance of the body-segments and especially by the rather different structure of the legs. The colour also is rather dissimilar.

Occurrence. — I have myself only met with a single female specimen of this species, which was taken on the west coast of Norway. In our University Museum are, however, 2 specimens, male and female, collected by Boeck, the one on the shores of Karmo, the other at Farsund (south coast of Norway). According to the Rev. Mr. Stebbing, this species is far less active than *H. Nilssoni,* quite wanting the power of leaping, when out of water.

Distribution. — British Islands, France, coast of Algiers (Chevreux).

Fam. 2. Lysianassidæ.

Body generally rather high, more or less compressed, glabrous, with the back evenly vaulted. Coxal plates deep, 4th pair generally the largest and deeply emarginated posteriorly to receive the rounded 5th pair. Metasome well developed, with large epimeral plates. Urosome short and thick, more or less convex above. Superior antennæ furnished with an accessory appendage, peduncle short and thick, flagellum more or less elongated, with the 1st joint generally rather large ond beset with dense tufts of sensitive hairs. Inferior antennæ more slender than the superior and having the basal joints not coalesced with the cephalon, flagellum in male often greatly elongated and filiform. Epistome generally projecting in front of the anterior lip; the latter more or less produced anteriorly. Mandibles less strong than in the Orchestiidæ, cutting edge simple, not denticulated, molar expansion rather small or quite wanting, palp large, triarticulate; between the latter and the cutting edge a more or less distinct rounded accessory lobe. First pair of maxillæ with the palp generally well developed, biarticulate, rarely quite rudimentary; 2nd pair with the lamellæ more or less elongated. Maxillipeds large, with the masticatory lobes generally largely developed and laminar, basal lobes much smaller and close together, palp elongated, 4-articulate. Anterior gnathopoda more or less prehensile, generally not very strong, but sometimes largely developed and subchelate; posterior ones always very feeble and slender, highly flexible and furnished with dense tufts of tactile hairs, dactylus as a rule quite rudimentary. The 3 posterior pairs of pereiopoda successively increasing in length and having the basal joint laminar. Branchial lamellæ large, sometimes folded transversally on the one or both sides. Incubatory lamellæ edged by slender setæ. Pleopoda rather powerful. Uropoda with the rami more or less lanceolate, last pair well developed, biramous, generally unlike the preceding pairs and having the outer ramus biarticulate. Telson flattened, entire or more or less deeply cleft.

Remarks. — The Lysianassidæ form a very natural subdivision of the more typical Amphipoda, and in my opinion ought to be classed as a family equally distinct as the Orchestiidæ. Boeck, however, did not regard this group as merely a sub-family of the family *Gammaridæ.* In the general habitus the numerous forms comprised in this family exhibit a rather uniform appearance, and it is not very long since they were all referred to a single genus, *Lysianassa.* It is the merit of the late Dr. A. Boeck, by a closer examination of the oral parts in the different forms, to have pointed out certain distinctive characters apparently of generic value. By reason of these characters he found himself able to subdivide the earlier genus *Lysianassa* or *Anonyx* into a great number of separate new genera, and, although some of the latter have not been sufficiently well characterised, the greater part of them must, in my opinion, evidently be supported. The family would seem to be chiefly characteristic to northern latitudes, and in the arctic seas some of the species occur in quite an astonishing abundance, having a great importance in cleansing the bottom by devouring the carcasses of the several great mammals, such as whales and seals, which are found there.

Gen. 1. **Trischizostoma,** Boeck, 1860.

Body moderately compressed, with the back broadly rounded. Cephalon produced anteriorly over the base of the superior antennæ, lateral angles not projecting. Second pair of coxal plates much larger than the other and greatly dilated inferiorly. Epimeral plates of metasome large, rounded. Eyes very large, occupying the greater part of the sides of the cephalon. Superior antennæ shorter than the inferior, accessory appendage well developed, with the 1st joint laminar. Oral parts greatly projecting inferiorly and crowded together in the form of a trifid tube. Epistome not projecting. Anterior lip very elongated and narrow; posterior lip with the lobes acutely lanceolate. Mandibles with the masticatory part styliform produced, cutting edge very narrow, sharpened and obliquely truncated, molar expansion quite wanting, accessory lobe inconspicuous, palp very large and densely setous. First pair of maxillæ with the masticatory lobe very narrow and divided at the tip into small claw-like teeth, basal lobe small, unarmed, palp very minute, but distinctly biarticulate. Second pair of maxillæ with both lobes very narrow, styliform. Maxillipeds rather large, masticatory lobes linguiform, projecting inferiorly and partly encompassing the other oral parts at the sides, basal lobes very narrow, unarmed, palp geniculate on the middle, with the terminal joint lanceolate. Anterior gnathopoda enormously developed, prehensile, terminating with a very large subchelate hand, which in the adult animal becomes inverted in such manner, that the dactylus originates from the infero-posterior corner of the propodos and is bent forwards against the strongly denticulated palm. Posterior gnathopoda quite of the structure typical to the Lysianassidæ. Pereiopoda not very large, the joints more or less compressed and only beset with very minute and scattered spines. Branchial lamellæ very large and of irregular form. Incubatory lamellæ rather broad and fringed with numerous slender setæ. Pleopoda very powerful. Uropoda with the rami broadly lanceolate and almost bare, last pair with the outer ramus biarticulate. Telson small, entire.

Remarks. — In classing this remarkable form, I have seen fit to dissent widely from the views supported by earlier authors. Boeck regards this animal as the type of a distinct family (Prostomatæ), which he places at the head of his division *Gammarina*, immediately before the *Orchestiidæ*, and Dr. Bovallius has classed it, together with the genera *Synopia* Dana and *Hyperiopsis* G. O. Sars, within a distinct tribe, *Synopidea*, constituting, however, within the latter, a particular family, *Trischizostomatidæ*. Finally Prof. Lilljeborg considers it the type of a subfamily, *Trischizostomatina*, placing it in the vicinity of his sub-family *Phoxina*. Although Boeck has mentioned some points of agreement with the Lyssianassidæ, none of these authors would seem to have recognised the near relationship, which in fact exists between this animal and the true Lysianassidæ. The agreement is indeed so very close, that the present form, in my judgement, unquestionably ought to be classed within the very same family. The oral parts have not yet been exactly examined in their details, neither by Boeck, nor by Dr. Bovallius. Though at first sight very anomalous, they are found, on a closer examination to be in reality constructed upon the very same type as in the true Lysianassidæ, and in some of the latter, for instance *Acidostoma* (see Pl. 14, fig. 2) the agreement is quite unmistakable. As to the anomalous appearance of the anterior gnathopoda, Dr. Bovallius has shown this to be merely due to a peculiar torsion of the outer part of the leg, whereby the hand becomes quite inverted in the adult animal, whereas in the young these limbs exhibit a far more normal appearance, nearly agreeing with that met with in the genus *Normania* (see Pl. 13, fig. 1). On the other hand the posterior gnathopoda are indistinguishable, both as to form and structure, from those in the typical Lysianassidæ. Finally the urosome, which in Boeck's opinion, is evidently Hyperiidean in character, essentially differs by being divided into 3 distinct segments and by the last pair of uropoda having a distinct terminal joint, as is the case in the greater part of the typical Gammaridea. Moreover, the whole exterior habitus and the structure of both the antennæ and the legs pretty well agrees with that met with in the Lysianassidæ, no essential difference whatever being found to exist.

1. **Trischizostoma Raschi**, (Boeck).

(Pl. 12).

Trischizostoma Raschi, Boeck, Crust. Amphip. bor, & arct. p. 11.

Body glabrous, moderately slender, with the back evenly vaulted. Cephalon rather short, narrowed inferiorly, frontal projection horizontal, obtuse at the tip. Coxal plates scarcely as deep as the body, 1st pair very small and partly covered by the 2nd; the latter greatly expanded inferiorly, jutting out both anteriorly and posteriorly as a triangular lobe; the two succeeding pairs almost equal-sized, obliquely oval, 4th pair truncated at the tip and deeply emarginated posteriorly to receive the 5th one, the posterior lobe of which is much deeper than the anterior; the 2 posterior pairs rather small. Last pair of epimeral plates of metasome nearly right-angled. First segment of urosome deeply impressed at the base dorsally. Eyes successively expanding superiorly, nearly confluent, though separated by a narrow stripe above in the middle. Superior antennæ a little longer than the cephalon, 1st joint of the peduncle much longer than the other 2 combined, flagellum 9-articulate, with the 1st joint very large, accessory appendage about the length of the latter, triarticulate, the 2 outer joints very small. Inferior antennæ twice the length of the superior, penultimate joint of the peduncle the largest, flagellum composed of about 24 articulations. Anterior gnathopoda with the propodos greatly inflated, rounded triangular, forming anteriorly a distinct angle, palm nearly straight and armed with recurved teeth, those at the extremity much stronger and claw-like; dactylus very strong, curved at the tip. Posterior gnathopoda very slender, propodal joint oval and densely hairy, dactylus very small and rudimentary. Meral joint of the 2 anterior pairs of pereiopoda, especially that of the 2nd pair, laminarly dilated. The 3 posterior pairs of pereiopoda comparatively short, successively increasing in length, basal joint laminar, and forming in the anterior ones an angular projection posteriorly. Uropoda only sligtly decreasing in size posteriorly, rami subequal. Telson rounded, almost as broad as it is long, tip obtusely truncated. Colour[1]) whitish, with a more or less distinct light reddish tinge on the sides of the body. Length of the largest specimen examined 28 mm.

Remarks. — This is the only, as yet, known species of the genus. All the specimens, which have hitherto been examined, were females, some of which had their incubatory pouch filled with eggs or young. In the latter, as stated above, the anterior gnathopoda have not yet assumed their peculiar torsion and of course exhibit an appearance rather different from that of the adult animal (see fig. p[1] jr.)

Occurrence. — The present remarkable form was first detected by the late Prof. Rasch on the Storeggen-bank, outside of the west coast of Norway, from a depth of about 100 fathoms. The specimens were obtained by submerging in the dredge the skinned body of a newly shot bird to which they were found clinging. It has subsequently been taken by Mr. Storm, curator of the Drontheim Museum, from the skin of the common black dog-fish *(Spinax niger)*, fished in the neighbourhood of the town. Finally Dr. Bovallius procured a few specimens at Tjoto in Nordland and in the Hardangerfjord. No doubt the species leads, as a rule, a parasitic life, and this may easily explain the peculiar formation of the anterior gnathopoda and oral parts. Out of Norway this form has not yet been recorded.

Gen. 2. **Normania,** Boeck, 1870.

Body comparatively short and stout, with the coxal plates not very deep. Cephalon of normal appearance. Eyes with the visual elements unusually large. Antennæ comparatively slender but not very elongated. Epistome applanated, not defined from the anterior lip. Mandibles of the usual structure, palp originating nearer the base than does the small molar expansion, very slender and almost bare, saving a few terminal setæ. First pair of maxillæ with the palp well developed, last joint laminar expanded, basal lobe comparatively short, with 2 small apical setæ. Second pair of maxillæ with the lobes rather narrow, setous at the tip only. Maxillipeds smaller than usual, masticatory lobes largely developed, laminar, broadly rounded at the extremity, basal lobes narrowly produced, palp rather small, by far not reaching to the tip of the masticatory lobes, terminal joint obsolete. Anterior gnathopoda rather strong, prehensil, terminating with a powerful and greatly inflated subcheliform hand; posterior ones very slender, propodal joint oblong, slightly produced at the end beneath the rudimentary dactylus, so as forming an inperfect minute chela. Pereiopoda extremely slender, the penultimate pair the longest. Brancial lamellæ indistinctly folded transversely on the one side. Incubatory lamellæ very narrow. Last pair of uropoda rather elongated, both rami narrow lanceolate and nearly subequal. Telson very short, entire.

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[1]) According to a communication from Mr. Storm.

Remarks. — The type of this genus is the form described by Sp. Bate and Westwood under the name of *Opis qvadrimana,* which however shows only a very remote affinity to the Krøyerian genus Opis, wherefore Boeck saw himself fit to establish for it a new genus under the above name. Its distinctive characters are among others the peculiar structure of the anterior gnathopoda, which somewhat resembles that in the young of *Trischizostoma*, the imperfect development of the palp of the maxillipeds, and the structure of the last pair of uropoda and of the telson.

2. **Normania qvadrimana,** (Sp. Bate & Westwood).

(Pl. 13, fig. 1).

Opis qvadrimana, Sp. Bate and Westwood, British Sessile-eyed Crust. Vol. II, p. 503.

Body somewhat compressed, with the back evenly vaulted. Cephalon rather deep and nearly as long as the 2 anterior segments of the mesosome combined, lateral corners only slightly projecting but distinctly angular. The 3 posterior segments of the mesosome much larger than the 4 anterior ones. Coxal plates scarcely deeper than the body, rounded inferiorly; 5th pair considerably lower than the preceding ones and almost twice as broad as deep. Lateral corners of the 3rd pair of epimeral plates of the metasome evenly rounded. First segment of urosome not produced dorsally. Eyes large, oval in form. Superior antennæ about the length of the cephalon and the 2 anterior segments of the mesosome combined, 1st joint of the peduncle not twice the length of the other 2 taken together, flagellum composed of 5 joints only, accessory appendage very slender, triarticulate. Inferior antennæ (in female) about the length of the superior, flagellum 4-articulate. Anterior gnathopoda with the basal joint very elongated, carpal joint constricted at the base and forming inferiorly a narrow projecting lobe, propodos large and tumid, rounded quadrate, palm transversely truncated and armed below with 3 strong spines. The 3 posterior pairs of pereiopoda slender and elongate, basal joint broadly oval, dactylus very slender. Last pair of uropoda considerably projecting beyond the preceding one, basal part much longer than the rami. Telson rounded quadrangular, truncated at the tip, a little longer than it is broad. Body whitish, pellucid, with yellowish intestine and dark bluish ovaries, ocular pigment brownish with orange-coloured coating. Length of adult female 5 mm.

Remarks. — The description and figures given by Boeck of this form are rather incomplete and in some cases incorrect, probably owing to his specimen being in a very bad state of preservation. It is the only, as yet, known species of the genus.

Occurrence. — Boeck obtained only a single mutilated specimen of this small Lysianasside at Haugesund on the west coast of Norway. I have myself found it in several places, both on the south and west coast, and generally in rather deep water, especially where the bottom consists of coarse sand and gravel. As the limbs are rather brittle, it is not easy to obtain perfect specimens by the aid of the usual dredge.

Distribution. — British Islands.

Gen. 3. **Cheirimedon,** Stebbing, 1888.

Body high, compressed, with very large coxal plates. Antennæ of usual structure, subequal (in female). Epistome slightly projecting and defined from the anterior lip by a short incision. Mandibles with the cutting edge terminating exteriorly with an acute dentiform corner, palp originating at about the same level as the molar expansion, less slender than in Normania, with the last joint shorter and furnished with a series of curved setæ on the inner edge. First pair of maxillæ with the palp less expanded and the basal lobe somewhat larger. Lobes of 2nd pair of maxillæ shorter and broader. Maxillipeds rather large, masticatory lobes of moderate size, basal ones normal, palp well developed, with the terminal joint unguiform. Anterior gnathopoda prehensile, terminating with a large complanated hand, successively expanded distally; posterior ones less slender than in Normania, propodal joint oval and densely hirsute. Pereiopoda not very slender, basal joint of the 3 posterior pairs very large, serrated posteriorly. Branchial lamellæ of usual structure. Uropoda successively decreasing in size posteriorly, last pair with the basal part rather short and thick, rami very unequal, the outer one much the larger and having a distinct terminal joint. Telson large, tapering, and deeply cleft.

Remarks. — This genus, though in some points related to the preceding one is very markedly distinguished by the rather different structure of the anterior gnathopoda and of the maxillipeds, as also by that of the last pair of uropoda and the telson. It was founded by the Rev. Mr. Stebbing on a species from the «Challenger» Expedition procured at Kerguelen.

3. **Cheirimedon latimanus,** G. O. Sars.

(Pl. 13, fig. 2).

Normania latimana, G. O. Sars Oversigt af Norges Crustaceer I, p. 83, pl. 3 fig. 5.

Body highly compressed, with the back evenly rounded. Cephalon having the lateral corners somewhat projecting and angular. Segments of mesosome successively increasing in size posteriorly. Coxal plates very large, the 4 anterior pairs being more than twice as deep as the body; 5th pair about as deep as it is broad. Epimeral plates of metasome likewise rather large, last pair having the posterior corners rectangular. First segment of urosome produced dorsally to a high compressed projection, obliquely truncated at the tip. Eyes of moderate size, narrow oval. Superior antennæ about the length of the cephalon and the 3 anterior segments of the mesosome combined, 1st joint of the peduncle more than three times the length of the other 2 combined, flagellum about the length of the peduncle, 7-articulate with the 1st joint rather large, accessory appendage slender, triarticulate. Inferior antennæ (in female) about the length of the superior, flagellum 6-articulate. Anterior gnathopoda with the carpus very small, triangular, propodos exceedingly large and broad, occupying about the third part of the length of the leg, triangular, gradually expanded towards the extremity, palm without any crenulations,slightly arcuate and defined below by a rightangled corner armed with 2 slender spines. Last pair of uropoda with the basal part shorter than the telson, inner ramus conically tapering and quite bare, outer one having at the end of the basal joint on each side a short spine. Telson almost twice as long as broad, gradually tapering and cleft beyond the middle, with 2 small dorsal denticles on each side and a single one at the tip of each terminal lobe. Length of adult female 6 mm.

Remarks. — The present species was formerly referred by the author to the genus *Normania.* But a closer anatomical examination has shown it to be in reality rather different, and evidently to belong to the genus *Cheirimedon,* as characterised by the Rev. Mr. Stebbing.

Occurrence. — The only specimen met with, an adult ovigerous female, was found many years ago by the author at Bukken on the west coast of Norway, the depth not recorded.

Gen. 4. **Opisa,** Boeck, 1876.

Syn: *Opis,* Kröyer.

Body rather robust, with broadly rounded back and very large and deep coxal plates. Antennæ in female very short, the inferior ones of male, however, greatly elongated and furnished at the anterior edge of the flagellum with a regular series of «calceolæ«. Epistome not very projecting and defined from the anterior lip by a slight sinus. Mandibles of the usual structure, palp originating nearer to the base than does the molar expansion, rather slender, 2nd joint densely setiferous on the inner edge. Maxillæ about as in Normania. Maxillipeds with the palp normal but comparatively short, only slightly reaching beyond the masticatory lobes; the latter rather large, oblong, angular at the tip, inner edge denticulated. Anterior gnathopoda prehensile, terminating with a very large forcipated hand, the inferior angle of the propodos being produced to an unguiform process, against which the greatly curved dactylus admits of being impinged. Posterior gnathopoda of the usual slender form, propodal joint oval, truncated at the tip. Pereiopoda not very elongated, basal joint of the 3 posterior pairs greatly dilated. Branchial lamellæ normal. Last pair of uropoda reaching beyond the preceding pair, rami densely setous at the inner edge. Telson very elongated and deeply cleft.

Remarks. — The generic name *Opis* proposed by Kröyer having been employed in Zoology at an earlier date, Boeck has seen fit to make the above slight change by adding the feminine termination. The genus is chiefly distinguished by the peculiar forcipate character of the anterior gnathopoda. It only comprises as yet a single species; for the several forms referred by other authors to this genus have turned out to be in fact generically distinct.

4. **Opisa Eshcrichti,** (Kröyer).

(Pl. 14, fig. 1).

Opis Eschrichti, Kröyer, Naturh. Tidsskr. 1 ser. V. 4, p. 149.

Syn: *Opis typica,* Kröyer.

Body glabrous, rather thick, with evenly vaulted back. Cephalon rather short, with the lateral corners somewhat projecting and narrowly rounded. First pair of coxal plates much smaller than the 2nd and partly covered by the latter; 4th pair deeply emarginated posteriorly and about twice as deep as the body; 5th pair scarcely broader than it is deep. Last pair of epimeral plates of metasome rounded at the posterior corners. First segment of urosome deeply impressed at the base dorsally. Eyes rather large, oblong, pigment dark brown. Superior antennæ scarcely more than twice the length of the cephalon, 1st joint of the peduncle very large and tumid, flagellum about the length of the peduncle, 8-articulate, with the 1st joint very large, especially in the male; accessory appendage rather elongated, 5-articulate. Inferior antennæ in female scarcely longer than the superior, in male nearly as long as the body. Anterior gnathopoda with the propodos nearly globular expanded, the thumb-like process sharply acuminated. Posterior gnathopoda with the propodos about half as long as the carpus and slightly dilated distally. Basal joint of the 3 posterior pairs of pereiopoda very large, rounded oval and nearly as long as the remaining part of the legs. Last pair of uropoda with the rami much longer than the basal part, outer one the longer and having a distinct terminal joint. Telson about three times longer than it is broad, scarcely tapering and cleft nearly to the base, each lobe having a terminal and 2 dorsal denticles. Colour whitish with dark brown intestine shining through the integuments. Length 7—8 mm.

Remarks. — As mentioned above, this is the only species of the genus as yet known. It has been well described by Kröyer in the Journal above cited and was figured by the same author in the well known richly illustrated work by Gaimard.

Occurrence. — On the coast of Norway I have only met with this form, in a single locality, viz., in the Varangerfjord at Vadso, Finmark, where 2 specimens, male and female, were found at a depth of about 100 fathoms. Dr. Goës and Malmgren have taken it in another locality, viz., at Grøtosund in Nordland.

Distribution. — Arctic Ocean: Greenland, in several places; Iceland.

Gen. 5. **Acidostoma**, Lilljeborg, 1865.

Body very short and robust, with the coxal plates large and deep. Superior antennæ rather different in the two sexes, having in male the peduncle greatly inflated and the 1st joint of the flagellum laminarly dilated and densely beset with long cilia; accessory appendage in both sexes unusually large, nearly as long as the flagellum. Inferior antennæ quite similar in the two sexes, rather slender. Oral parts greatly projecting inferiorly and on the whole constructed upon a similar type as in Trischizostoma. Epistome applanated and not defined from the anterior lip; the latter narrow and elongated. Mandibles with the masticatory part rather produced and without any trace of a molar expansion; palp slender and almost bare except at the tip. First pair of maxillæ with only a very slight rudiment of a palp, masticatory lobe narrowly produced and divided at the extremity into small unguiform teeth, basal lobe rather small and narrow. Second pair of maxillæ with both lobes styliform produced. Maxillipeds with the masticatory lobes very large and laminar, palp rather slender but scarcely reaching beyond the latter, terminal joint rudimentary, knob-like. Anterior gnathopoda rather robust but scarcely subcheliform, propodos tapering, without any distinctly difined palmar edge. Posterior gnathopoda slender, with the propodos narrow oblong and densely hirsute. The 3 posterior pairs of pereiopoda unusually robust, with both the basal and meral joints greatly expanded. Branchial lamellæ normal. Last pair of uropoda extremely small, penultimate pair having the basal part very broad. Telson short and broad, scale-like, more or less incised posteriorly.

Remarks. — This genus has been established by Prof. Lilljeborg chiefly on account of the anomalous structure of the oral parts, which would seem to point to a semi-parasitic life. In fact the present genus shows in the latter respect an unmistakable accordance with the remarkable parasitic form, *Trischizostoma*, described above, though differing in most other points very decidedly. Another rather anomalous feature consists in the sexual difference being here chiefly pronounced in the structure of the superior antennæ and not, as usual, in that of the inferior ones.

5. **Acidostoma obesum,** (Sp. Bate).

(Pl. 14, fig. 2).

Anonyx obesus, Sp. Bate, Cat. Amphip. Crust. Brit, Mus. p. 74, Pl. XII, fig. 1.

Body thick and robust, with broadly rounded back. Cephalon comparatively short, with the lateral corners but slightly projecting and rounded. The 4 anterior pairs of coxal plates very large, more than twice the depth of the body; 4th pair deeply emarginated posteriorly and forming, below the emargination, an acute angle; 5th pair fully as deep as broad. Last pair of epimeral plates of metasome narrowly rounded posteriorly. First segment of urosome slightly impressed at the base dorsally. Eyes rather small, rounded, placed near the lateral corners of the cephalon, pigment light brownish. Superior antennæ in female with the 2 outer joints of the peduncle much narrower than the 1st and combined about half its length, flagellum about the length of the peduncle, 7-articulate, 1st joint comparatively short and scarcely broader than the succeeding ones, accessory appendage only very little shorter than the flagellum, 5-articulate; those of male much more massive, peduncle greatly swollen, with the 2 outer joints nearly as broad as the basal one, 1st joint of the flagellum very large and complanated, with the inferior edge arched and densely beset with delicate and slender sensitive hairs. Anterior gnathopoda with the propodos about as long at the carpus, dactylus rather short. The 3 posterior pereiopoda nearly uniform in length, or the penultimate one a little longer, basal joint very large, rounded quadrangular, meral joint, especially in the 2 anterior pairs, greatly dilated. Penultimate pair of uropoda with the basal part much broader than that of the preceding pair and forming at the end posteriorly an angular corner; last pair scarcely half as long as the preceding pair, rami lanceolate, unarmed, the outer one the longer. Telson almost as broad as long, rounded, and cleft beyond the middle. Colour pale orange with light red pigmentary bands across the segments. Length 5 mm.

Remarks. — The form described by the author from the North Atlantic Expedition as *Acidostoma laticorne* is the male of a nearly related species, which differs, in addition to its much larger size, in the total want of eyes and in a somewhat different form of the last pair of uropoda and of the telson. A female specimen of the same species, measuring 11 mm in length, was also obtained on the Expedition, but was wrongly referred to the typical form. On the coast of Norway this abyssal species has not yet been found; for the specimen named so in my «Oversigt af Norges Crustaceer» I find on closer examination to be more properly referable to the typical species.

Occurrence. — I have met with the present form rather sparingly on the south and west coast of Norway at moderate depths, from 20 to 50 fathoms. Prof. Lilljeborg has taken it at Molde and Boeck at Haugesund; finally Dr. Lindstrom has procured the species at Farsund.

Distribution. — Coast of Bohuslehn, British Islands, Shetland.

Gen. 6. **Ichnopus,** Costa, 1853.

Body rather slender and compressed, with the coxal plates of moderate size. Both pairs of antennæ with the flagella unusually elongated and composed of numerous short articulations. Anterior lip slightly projecting anteriorly as a short rounded lobe, defined from the epistome by a narrow incision. Posterior lip strongly chitinised, with very slender and projecting lateral corners. Mandibles rather strong, cutting edge broad, accessory lobe narrowly rounded and separated from the latter only by a small sinus, palp originating at the same level as the molar expansion, rather large, terminal joint tapering to a narrow incurved point. First pair of maxillæ with the masticatory lobe rather large, densely hairy and armed both at the tip and the inner edge with strong denticulated spines, basal lobe small, palp normal. Second pair of maxillæ with the lobes rather narrow. Maxillipeds well developed, masticatory lobes very large and broadly rounded at the tip, palp attenuated, with the terminal joint comparatively short. Anterior gnathopoda rather small and attenuated, scarcely subcheliform, propodos tapering, without any distinctly defined palmar edge, dactylus short and curved, pectinate at the base. Posterior gnathopoda much longer than the anterior, propodos not produced at the tip. The 3 posterior pairs of pereiopoda successively increasing in length, last pair rather elongated. Branchial lamellæ very large and complicated, with a double series of small secondary lamellæ arranged in a bipinnated manner. Incubatory lamellæ rather narrow but somewhat expanded at the end. Last pair of uropoda rather large, rami lanceolate with the edges denticulated and setous. Telson deeply cleft.

Remarks. — The present genus, established by Costa, is chiefly characterised by the unusual length of the antennal flagella, by the comparatively small, not subcheliform, anterior gnathopoda, and by the very complicated structure of the branchial lamellæ. From the genus *Lysianassa*, which seems to be its nearest ally, it, moreover, differs by the deeply incised telson. The genus would seem on the whole to have a southern range. It comprises as yet only 3 species, 2 of which, *I. taurus* Costa and *I. affinis* Heller, are peculiar to the Mediterranean, whereas the 3rd species, *I. spinicornis* Boeck, besides in the Mediterranean, is also found on the coast of Norway. Two other species have been described as belongning to this genus; but the one, *I. minutus* Boeck, is only founded on young specimens of I. spinicornis, and the other, *I. umbonatus* G. O. Sars, has on closer examination been found not to belong to the present genus.

6. **Ichnopus spinicornis,** (Boeck).

(Pl. 15).

Ichnopus spinicornis, Boeck, Crust. Amphip. bor. & arct. p. 18.

Syn: *Ichnopus minutus* Boeck.

« *calceolatus,* Heller.

Body rather elongated, with the back rounded. Cephalon comparatively small and having the lateral corners somewhat projecting and angular. Coxal plates successively increasing in size to the 4th pair, which do not attain the double depth of the body and have the posterior corners drawn out to an acute angle; 5th pair considerably broader than it is deep. First pair of epimeral plates of the metasome produced anteriorly to a short tooth-like projection; last pair having the posterior angle drawn out to a short upturned point, above which there is a small sinus defining the latter from a convex expansion of the posterior edge. Eyes reniform, much larger in male than in female, pigment deep red. Superior antennæ of female about $^1/_3$ the length of the body, in male considerably longer, 1st joint of the peduncle very thick and masive jutting out at the end inferiorly as a short spiniform projection, the 2 other joints very short; flagellum furnished in both sexes on the posterior edge with a somewhat alternating series of rather large calceolæ, accessory appendage very slender and composed of about 10 articulations. Inferior antennæ in female a little, in male considerably, longer than the superior, flagellum in both sexes furnished anteriorly with a row of similar calceolæ as on the latter. Anterior gnathopoda with the propodos about as long as the carpus but much narrower, dactylus evenly curved and armed at the base with a dense bunch of delicate spinules. Posterior gnathopoda nearly twice the length of the anterior, propodal joint oval, half as long as the carpal joint and not at all produced at the tip. Last pair of pereiopoda almost twice the length of the 3rd. Last pair of uropoda with the rami much longer than the basal part, outer one the longer and having a distinct terminal joint. Telson twice as long as broad, cleft beyond the middle, each lobe bearing a small apical denticle. Colour light greenish, oral region and urosome partly tinged with crimson. Length 17 mm.

Remarks. — The present very handsome species is chiefly distinguished by the peculiar supply on the antennal flagella in both sexes of numerous rather large colceolæ, a character which usually is only particular to the male sex. Moreover the spiniform projection of the first joint of the superior antennæ, and the peculiar form of the 1st and last pair of epimeral plates of the metasome afford good distinctive characters.

Occurrence. — It has been found in several places on the west coast of Norway: Manger, Stavangerfjord, Skudesnæs, Bukken, Bejan, in moderate depths, from 20 to 50 fathoms. Its most northern range seems to be the Trondhjemsfjord.

Distribution. — Adriatic (Heller), gulf of Marseilles (Marion).

Gen. 7. **Lysianassa,** Milne Edwards, 1830.

Body compressed, glabrous; with rather firm integuments and very large coxal plates. Superior antennæ having the 2 outer joints of the peduncle more elongated than in most other forms; inferior ones in female scarcely longer than the superior, in male greatly elongated. Anterior lip produced anteriorly to a large linguiform plate defined from the epistome by a very narrow fissure-like incision. Mandibles more elongated than in Ichnopus but otherwise of a rather similar structure, palp very slender originating much nearer the base than does the very small molar expansion. First pair of maxillæ with the masticatory lobe not hairy but armed at the tip with densely crowded strong denticulated spines, basal lobe rather large, triangular, without distinct apical setæ. 2nd pair with the inner lobe much broader than the outer. Maxillipeds well developed, masticatory lobes of moderate size, regularly oval, palp slender and elongated. Anterior gnathopoda comparatively small, not subcheliform, propodos tapering, dactylus short and simple; posterior ones about as in Ichnopus. Pereiopoda rather slender, the 3 posterior pairs with very broad lamellar basal joints. Branchial lamellæ indistinctly folded transversely on the one face. Uropoda slender, successively diminishing in size posteriorly, last pair with the rami narrow lanceolate, naked in female, densely setiferous in male. Telson small, squamiform, entire.

Remarks. — This is the genus at first established and may therefore be regarded as the type of the family. It is easily known by the slender compressed form of the body and the largely developed coxal plates. As distinctive characters may, moreover, be named the structure of the anterior gnathopoda and especially that of the telson. The genus would seem to have an evident southern range and to comprise several species, some of which however, may still be regarded as rather doubtful. Thus the arctic form described by Dr. Goës as *Lysianassa cymba* and likewise by Boeck mentioned, though with some doubt, as a Lysianassa, can certainly not be adduced to this genus. Only a single species belongs to the Norwegian fauna; for the form described by Boeck under the name of *Lysianassa plumosa* is quite certainly the adult male of *L. Costæ.*

7. **Lysianassa Costæ,** (Milne Edwards).

(Pl. 16, fig. 1.)

Lysianassa Costæ, Milne Edwards, Ann. des Sci. Nat. T. XX, p. 365, Pl. 10, fig. 17.

Syn: *Lysianassa plumosa,* Boeck = ♂.

Body rather slender and compressed, with the back narrowly rounded. Cephalon comparatively narrow, lateral angles considerably produced and acuminate. Coxal plates very large and close together, the inferior edges of the 4 anterior pairs forming on each side an uninterrupted arch, 4th pair the largest and nearly three times as deep as the body, deeply emarginated posteriorly, the lower part considerably dilated and forming posteriorly a sharp corner; 5th pair about as deep as broad. Last pair of epimeral plates of metasome produced at the posterior coner to a sharp upturned hooklike projection. Eyes large, broadly reniform, pigment dark purplish. Superior antennæ almost the length of the cephalon and the 2 anterior segments of the mesosome combined, 1st joint of peduncle rather broad, with a row of small delicately ciliated bristles on the posterior edge, the 2 succeeding joints considerably narrower and combined about as long as the 1st; flagellum slender, about the length of the peduncle, 12-articulate; accessory appendage very small, triarticulate. Inferior antennæ in female scarcely longer than the superior, 3rd joint of the peduncle unusually large, flagellum shorter than the peduncle; in male greatly elongated, exceeding the length of the body, flagellum very narrow, filiform. Anterior gnathopoda unusually short, basal joint as long as the whole remainder part of the leg, propodos narrow, tapering, a little longer than the carpus. Pereiopoda densely setous, the setæ in female simple, in male plumose, carpal and propodal joint, as well as the dactylus, in all very slender. Last pair of uropoda with the rami scarcely as long as the basal part. Telson oval, unarmed, evenly rounded posteriorly. Colour pale yellowish, with irregular orange shades on the 4 posterior pairs of coxal plates and the posterior segments of the body. Length 12 mm.

Remarks. — It appears to me somewhat doubtful whether the present form is identical with the species so named by Milne Edwards. But as Sp. Bate has identified the British form, which unquestionably is the same as that here described, with Milne Edwards' species, I think the name proposed by the latter author must be retained for the present form.

Occurrence. — The species would seem to have a similar distribution on the coast of Norway as *Ichnopus spinicornis,* having been met with only o the west coast: at Christiansund, Sognefjord, Bukken, Mosterhavn, Haugesund. It occurs in rather deep water, from 50 to 100 fathoms.

Distribution. — British Islands, France, Mediterranean.

Gen. 8. **Socarnes,** Boeck, 1870.

Body less compressed, with rather large coxal plates. Antennæ about as in Lysianassa, saving that the accessory appendage of the superior ones is more developed. Oral parts very like those in the said genus, but the mandibular palp smaller, and the inner lobe of the 2nd pair of maxillæ narrower. Anterior gnathopoda, as in Lysianassa, simple, not subcheliform; posterior ones with the propodal joint very short, more or less expanded below the dactylus. Pereiopoda less slender, basal joint of the 3 posterior pairs greatly dilated. Branchial lamellæ with distinct, though somewhat irregularly arranged, secondary lobes on the one face only. Last pair of uropoda with the rami longer than the basal part, the outer one having a distinct terminal joint. Telson rather large, tapering and deeply cleft.

Remarks. — The present genus, established by Boeck, is very nearly related to *Lysianassa*, both as to the oral parts and the other limbs. The only character which more markedly distinguishes it, is the structure of the telson, which is certainly very different from that in Lysianassa, and for this reason I think it will be suitable to support the genus, the more so, as there are several forms which pretty well agree with each other in the latter character. Besides the species described below, the arctic form, *Lysianassa bidenticulata* Sp. Bate, unquestionably belongs to the same generic type, and in all probability also *L. Kröyeri* White from Van-Diemens Land. Moreover, some of the species of *Anonyx* described by Heller from the Adriatic would seem to be more properly referable to the present genus.

8. **Socarnes Vahli,** (Kröyer).

(Pl. 16, fig. 2).

Anonyx Vahli, Kröyer, Grønlands Amphipoder l. c., p. 5.

Syn: *Gammarus ugax, Owen,* not Phipps.

Body rather slender but somewhat thickish, with broadly rounded back. Cephalon rather deep, with the lateral corners but slightly produced and narrowly rounded. Coxal plates rather large but scarcely more than twice the depth of the body and comparatively narrower than in Lysianassa; 5th pair nearly as deep as broad. Last pair of epimeral plates of metasome broadly rounded or almost obtusely truncated at the posterior corners. Eyes reniform, pigment black. Superior antennæ with the 1st joint of the peduncle about twice the length of the other 2 combined, flagellum about as long as the peduncle, 12-articulate, 1st joint rather small, accessory appendage half the length of the flagellum, 7-articulate. Inferior antennæ in female scarcely longer than the superior, in male greatly elongated, exceeding in adult specimens the length of the body. Epistome and anterior lip almost exactly as in Lysianassa. Anterior gnathopoda with the basal joint shorter than the remainder part of the leg, propodos about the length of the carpus, evenly tapering to the end. Posterior gnathopoda with the propodos scarcely half the length of the carpus, roundly expanded below the dactylus. Last pair of uropoda with the inner ramus considerably shorter than the outer. Telson about the length of the basal part of the last pair of uropoda, cleft beyond the middle, the lobes narrowly rounded at the tip and each armed with a small apical denticle. Body whitish, ornamented with closely set pigmentary spots of a beautiful crimson colour forming broad transversal bands over the body and partly also down the coxal plates. Length 14 mm.

Remarks. — From the very nearly related arctic form, *S. bidenticulatus* (Sp. Bate), the present species is easily known, as well by the far inferior size, and by the broadly rounded corners of the last pair of epimeral plates of the metasome. According to the figures given by Hoek of his *Socarnes ovalis,* which is identical with the above named form, the posterior gnathopoda also differ very markedly from those in the present species by the propodal joint being produced to an angular corner beneath the dactylus.

Occurrence. — Off the coast of Norway this form is chiefly restricted to the arctic region, occurring rather plentifully along the whole coast of Finmark at moderate depths. Occasionally, however, it is also met with on the west coast, as far south as Haugesund (Boeck).

Distribution. — Arctic Ocean: Greenland, Spitsbergen, Iceland, Novaja Semlja, the Kara Sea.

Gen. 9. **Ambasia,** Boeck, 1870.

Body rather compressed, with large and deep coxal plates. Eyes with the visual elements imperfectly developed. Antennæ (in female) short and stout, about of equal length, antepenultimate peduncular joint of the inferior ones rather elongated, flagellum in both pairs only composed of a very restricted number of articulations. Epistome projecting in front of the anterior lip as a large angular plate. Posterior lip membranous, with the lateral corners narrowly exserted. Mandibles rather strong, cutting edge broad, molar expansion very slight, almost obsolete; palp slender, originating nearer the base than does the latter. First pair of maxillæ with the masticatory lobe less strong than usual and having a rather limited number of spines, basal lobe very small and rounded, palp well developed. Second pair of maxillæ with the lobes nearly equal-sized and not very elongated. Maxillipeds with the masticatory lobe very large, elliptical, palp poorly developed, only slightly reaching beyond the latter; terminal joint imperfectly developed, knob-like. Anterior gnathopoda slender, propodos narrow, tapering, without any distinctly defined palmar edge. Posterior gnathopoda of the usual structure, propodos oval, very slightly produced beneath the minute dactylus. Pereiopoda comparatively short, dactylus very small, basal joint of the 3 posterior pairs large and laminar. Pleopoda normal. Last pair of uropoda comparatively short, scarcely reaching beyond the preceding pair, inner ramus much smaller than outer. Telson of moderate size, deeply cleft.

Remarks. — The present genus agrees with the 3 preceding ones in the structure of the anterior gnathopoda, but differs materially by the deviating form of the epistome, as also in the structure of the oral parts. From *Lysianassa* it is further distinguished by the deeply cleft telson, and from both that and the other two genera by the poor development of the last pair of uropoda. It may be that the 2 Mediterranean species, *Anonyx Smardæ* and *filicornis*, described by Heller, belong to this genus, as suggested by Boeck, but, on the other hand, I cannot coincide with the Rev. Mr. Stebbing in referring to this genus the form he describes from the Challenger Expedition as *Ambasia integricauda*. For the latter form would seem to differ very materially from the typical species in several characters usually regarded as of generic value, for instance in the form of the telson and especially in the very anomalous structure of the pleopoda.

9. **Ambasia Danielsseni**, Boeck.

(Pl. 17, fig. 1).

Ambasia Danielsseni, Boeck, Crust. amph. bor. & arctica, p. 17.

Body moderately slender, with the back evenly rounded. Cephalon rather deep, lateral corners produced and almost rectangular. First pair of coxal plates much smaller than the succeeding ones and partially covered by the same, the latter nearly three times deeper than the body; 4th pair considerably dilated inferiorly and exhibiting behind a sharp angular corner; 5th pair about as deep as broad. Third pair of epimeral plates of metasome rounded posteriorly, with a very small upturned dentiform projection at the inferior corners. First segment of urosome provided dorsally with a high compressed triangular expansion. Eyes narrow, subsigmoid, occupying nearly the entire height of the cephalon, pigment a beautiful red. Superior antennæ with the 1st joint of the peduncle very large and bulging out anteriorly, the 2 succeeding ones extremely small; flagellum composed of 7 joints, the 1st of which is very large, nearly twice the length of the others combined; accessory appendage scarcely exceeding the 1st joint of the flagellum, 5-articulate. Inferior antennæ (in female) rather slender, flagellum short, about as long as the penultimate joint of the peduncle, and composed of 5 joints. Anterior gnathopoda having the basal joint slightly dilated and shorter than the remaining part of the leg, propodos scarcely as long as the carpus, dactylus very small. Posterior gnathopoda very slender, propodos about half the length of the carpus. Last pair of uropoda with the outer ramus nearly twice as large as the inner, the latter lanceolate, unarmed. Telson oval, gradually tapering, cleft beyond the middle, the incision very narrow. Colour dark purplish red from numerous pigmentary spots arranged in transversal bands across the segments and continued down the coxal plates and legs. Length 13 mm.

Remarks. — Only female specimens have hitherto been observed. There is, however, every reason to believe that the male would differ from the female in a manner quite analogous to that observed in the genera *Lysianassa* and *Socarnes.*

Occurrence. Although very rarely met with, this beautiful Lysianassid would seem to occur along the whole coast af Norway. I have found it in several places both on the south and west coast as far north as Hammerfest in Finmark. It is found in depths varying from 40 to 100 fathoms. Out of Norway it has not yet been recorded.

Gen. 10. **Aristias,** Boeck, 1870.

Body short and thick, with comparatively small coxal plates. Superior antennæ rather slender, peduncle narrower than usual. Inferior antennæ (in female) shorter than the superior, with the antepenultimate joint of the peduncle short and thick. Epistome scarcely projecting and defined from the anterior lip by a small but distinct sinus. Posterior lip membranous, with short and blunt lateral corners. Mandibles strong, cutting edge quite simple, molar expansion very narrow and prominent, acuminate at the tip, palp rather elongated and attached at the same level as the latter. First pair of maxillæ with the masticatory lobe very broad and edged with numerous unequal alternating spines, the basal lobe small and rounded, having 5 thick plumose setæ on the inner edge; palp normal. Second pair of maxillæ with the lobes widely diverging, the inner one very broad and strongly incurved, edged with numerous spiniform setæ, the outer lobe much narrower and pointing straight forwards. Maxillipeds comparatively small, masticatory lobe oval, palp tapering, almost bare, and but slightly projecting beyond the latter, terminal joint unguiform. Anterior gnathopoda rather robust, propodos tumid at the base, obpyriform and finely serrated on the inferior edge, palmar border not distinctly defined, dactylus short. Posterior gnathopoda very slender and densely hirsute in the outer part, propodos narrow oblong, produced at the tip beneath the rudimentary dactylus so as to form a minute chela. Pereiopoda of nearly uniform size, rather strong, basal joint of the 3 posterior pairs not very much dilated. Uropoda with the rami lanceolate and partly serrated on the edges, last pair slightly reaching beyond the preceding pair, outer ramus the larger and having a distinct terminal joint. Telson comparatively short, deeply cleft.

Remarks. — This is a very distinct genus, differing, as it does, especially in the structure of the oral parts, very decidedly from the other Lysianassidæ. Besides the 2 species described below, the *Lysianassa ciliata* of Heller undoubtedly belongs to this genus, and probably also *L. humilis* Costa.

10. **Aristias audouinianus**, (Sp. Bate).

(Pl. 17, fig. 2).

Lysianassa audouiniana, Sp. Bate, Brit. Assoc. Rep. 1855.

Syn: Aristias tumidus, Boeck (not Kröyer).

Body short and robust, with broadly rounded back and sharply defined segments. Cephalon very short, truncated in front, lateral corners almost rectangular and slightly produced at the tip. First pair of coxal plates very small and to a great extent covered by the succeeding pair; the latter only little deeper than the body; 4th pair scarcely broader than 3rd and only very slightly emarginated posteriorly, inferior part narrowly rounded; 5th pair much more broad than deep. Last pair of epimeral plates of metasome narrowly rounded at the infero-posterior corners, posterior edge smooth. Eyes rounded oval, placed near the lateral corners of the cephalon, pigment black with a whitish coating. Superior antennæ about the length of the cephalon and the 3 anterior segments of the mesosome combined, 2nd joint of the peduncle twice as large as the 3rd, and both together about half the length of the 1st joint; flagellum only little longer than the peduncle, 10-articulate, 1st joint rather large; accessory appendage half the length of the flagellum, 5-articulate. Inferior antennæ having the flagellum about as long as the peduncle and 9-articulate. Anterior gnathopoda with the propodos fully as long as the carpus, inferior edge finely serrated and, besides, armed with 4 short spines. Posterior gnathopoda nearly twice as long as the anterior and very slender, propodos about half the length of the carpus, both densely setous on both edges. Pereiopoda rather elongated, basal joint of the posterior pair shorter than the remainder part of the leg, meral joint but slightly dilated posteriorly. Last pair of uropoda with the inner ramus distinctly serrated on the inner edge, outer ramus scarcely broader and but little longer than the inner. Telson longer than it is broad, cleft beyond the middle, the incision rather broad, terminal lobes narrow and armed each with 3 small apical spines. Colour corneous yellow with a tinge of flesh-colour on the mesosome, ovaries dark bluish. Length 8 mm.

Remarks. — As recently pointed out by Dr. Hansen, this form has been confounded by Boeck and subsequent authors with the following species. Believing, however, the *Lysianassa audouiniana* of Sp. Bate to be specifically distinct, he has proposed for the form here described another name, viz., that of *A. neglectus.* In my opinion, there can be little doubt that in reality both are identical.

Occurrence. — I have met with this form rather plentifully both on the south and west coast of Norway, at least up to the Trondhjemsfjord, in depths varying from 20 to 150 fathoms. Very frequently it is found within the branchial sac of Ascidiæ, thus leading a semiparasitic life. It is very strange that among the numerous specimens collected not even a single male could be detected. Is it that the sexual difference in this form is so very slight as quite to escape attention?

Distribution. — British Islands, Denmark, France, Shetland; Adriatic (Heller).

11. **Aristias tumidus,** (Kröyer).

(Pl. 18, fig. 1).

Anonyx tumidus, Kröyer, Naturhist. Tidssk. 2 R., Bd. 2, p. 16.

Syn: Menigrates arcticus, Schneider.

Very like the preceding species, but with the body a little more slender. Cephalon with the lateral corners bluntly rounded, not drawn out at the tip. Lateral corners of the last pair of epimeral plates of metasome rectangular, posterior edge irregularly serrated. Eyes comparatively larger than in *A. audouinianus,* distinctly constricted in the upper part, pigment black. Superior antennæ relatively shorter than in that species, flagellum composed of a less number of articulations. Anterior gnathopoda very like those organs in *A. audouinianus,* but the propodos comparatively shorter and stouter. Posterior gnathopoda less slender. Pereiopoda also comparatively shorter, propodal joint in all produced at the tip, beneath the dactylus, to a short tooth-like process, meral joint in the 3 posterior pairs considerably dilated, with the posterior angle produced almost to the end of the carpal joint, basal joint in the last pair fully as long as the remainder part of the leg. Last pair of uropoda with the outer ramus rather large, its basal joint being considerably dilated and very sharply defined from the small spiniform terminal joint; inner ramus scarcely more than half as long as the outer. Telson about as broad as it is long, cleft beyond the middle, the incision narrower than in *A. audouinianus,* terminal lobes each with a single apical denticle. Colour greyish white. Length 8 mm.

Remarks. — Dr. Hansen has been the first to show that the Kröyerian species *Anonyx tumidus,* which, as above stated, was identified by Boeck and most of the subsequent authors with *Lysianassa audouiniana* of Sp. Bate, though very nearly related, yet is evidently distinct from the latter, differing, as it does, in several anatomical details very markedly, especially in the structure of the last pair of uropoda. The form described by Mr. Schneider[1]) as *Menigrates arcticus* is undoubtedly identical with the present species.

Occurrence. — The species would seem on the coast of Norway to be restricted to the arctic region. I have taken it, though rather sparingly, in the Varangerfjord at Vadso in a depth of 60—80 fathoms, and a few specimens are preserved in our Univ. Museum without statement of the locality, but probably also found on the coast of Finmark. According to Göes it occasionally is found in the branchial sac of Ascidiæ, as is the case with the preceding species.

Distribution. — Arctic Ocean: Greenland, Spitsbergen, Franz Josephs Land.

Gen. 11. **Lysianella,** G. O. Sars, 1882.

Body compressed, shorter and stouter in male than in female, coxal plates rather large. Superior antennæ in female comparatively slender, in male much stronger, accessory appendage in both sexes rather elongated. Inferior antennæ about as long as the superior, of uniform structure in the two sexes, penultimate joint of the peduncle very large, laminarly expanded and inside densely clothed with fine hair. Buccal mass greatly projecting inferiorly. Anterior lip jutting out in front of the epistome as a narrow digitiform lobe. Posterior lip strongly chitinized, rather narrow, lateral corners but little diverging. Mandibles very strong, but with the molar expansion extremely small, palp unusually short and originating much nearer the base than does the latter. First pair of maxillæ of usual structure, basal lobe narrowly tapering and provided at the tip with 2 slender bristles; 2nd pair with both lobes narrowly produced and setous only at the tip. Maxillipeds not very large, masticatory lobe narrow oval, basal one acutely tapering, palp slender, setous. Anterior gnathopoda of moderate size, subcheliform; posterior ones rather slender, with the propodos slightly produced beneath the minute dactylus. Pereiopoda slender, basal joint of the 3 posterior pairs very large and laminar. Last pair of uropoda small, scarcely reaching beyond the preceding pair; rami not setous nor denticulate, subequal in size, the outer with a distinct spiniform terminal joint. Telson squamiform, entire.

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[1]) Tromsø Museums Aarshefter VII.

Remarks. — This genus is well characterised by the peculiar laminar form of the penultimate peduncular joint of the inferior antennæ, by the digitiform projecting anterior lip, and by the coarse structure of the mandibles. In the form of the telson it agrees with *Lysianassa*, but is otherwise very different. The sexual differences are somewhat analogous to those described above in the genus *Acidostoma*, the superior antennæ only being modified in the male, and not, as is usual, the inferior. With that genus it also agrees in the full development of the accessory appendage of the superior antennæ.

12. **Lysianella petalocera,** G. O. Sars.

(Pl. 18, fig. 2).

Lysianella petalocera, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 78, Pl. 3, fig. 3.

Body of female moderately slender, that of male considerably stouter, the mesosome being much shorter in proportion to the metasome. Cephalon in female about the length of the first segment of the mesosome, with the lateral corners somewhat projecting and subangular, in male much deeper and having the lateral corners less projecting. The 4 anterior pairs of coxal plates about twice as deep as the body; 4th pair distinctly emarginated posteriorly with the inferior part considerably dilated; 5th pair scarcely deeper than they are broad. Last pair of epimeral plates of metasome rather large and obtusely rounded at the posterior corner. Eyes oval, dark purplish brown, with a reddish coating; in male considerably larger than in female. Superior antennæ in female about the length of the cephalon and the 2 first segments of the mesosome combined; peduncle not very strong, first joint about twice the length of the other two combined; flagellum rather slender, 8-articulate, 1st joint about the length of the 2 succeeding ones combined; accessory appendage a little shorter than the flagellum, but scarcely more slender, 4-articulate. Superior antennæ in male much stronger, the peduncle being considerably tumeficated and the 1st joint of the flagellum very large and densely clothed with long sensitive hairs. Inferior antennæ with the penultimate joint of the peduncle rounded oval, anterior edge strongly curved, flagellum 8-articulate. Anterior gnathopoda with the propodos rather narrow, about the length of the carpus, and somewhat obliquely truncated at the tip, dactylus short and simple. Posterior gnathopoda not much longer than the anterior, propodos half as long as the carpus and about of uniform breadth throughout. Last pair of uropoda with the rami scarcely longer than the basal part. Telson rather small, oval, nearly twice as long as broad, and evenly rounded at the tip, with 2 small apical denticles. Colour whitish with greenish intestine; ova in the marsupial pouch orange-coloured. Length of female 5 mm., of male 3½ mm.

Remarks. — This is the only as yet known species of the genus; for none of the earlier described forms of Lysianassidæ can properly be referred to it, at least so far as our present knowledge of them goes.

Occurrence. — Although rather rarely met with, this small Lysianassid would seem to occur along the whole coast of Norway. I first detected it in the Lyngdalsfjord near Farsund, on the south coast of Norway, in a depth of about 100 fathoms, and have subsequently found it again in several localities both on the south and west coast and even so far North as Mehavn near Nordkap, Finmark. Out of Norway it has as yet not been recorded.

Gen. 12. **Callisoma,** Costa, 1851.

Syn: Scopelocheirus, Sp. Bate.

Body rather thickset, glabrous, with large coxal plates. Superior antennæ much shorter than the inferior, with the peduncle considerably tumeficated, 1st joint of the flagellum in male very large, accessory appendage comparatively small. Inferior antennæ slender and elongated in both sexes but especially in male, basal joint much tumeficated; flagella of both pairs in male provided with distinct calceolæ. Epistome slightly projecting, rounded, and defined from the likewise rounded anterior lip by a distinct sinus. Posterior lip membranous, with widely diverging lateral corners. Mandibles rather powerful, with the molar expansion considerably projecting and tapering towards the tip; palp large and densely setous, originating at about the same level as the latter. First pair of maxillæ with the masticatory lobe comparatively short and rounded at the tip, which is armed with numerous unequal spines; basal lobe rather large, triangular, with a series of strong plumose setæ on the inner edge; palp of usual structure, apical denticles bifurcate. Second pair of maxillæ with both lobes short and broad and densely setous, the setæ of the inner lobe partly plumose and continued down the inner edge. Maxillipeds with the masticatory lobe comparatively short and broad, armed on the inner edge with small claw-like spines, basal lobe obtusely truncated at the tip, palp rather large, dactylus slender spiniform. Both pairs of gnathopoda very slender and about of same length, the anterior ones with the propodos narrow and elongated, provided at the tip with a double row of delicate setæ, dactylus replaced by a dense brush of hair-like setæ, though a claw-like rudiment may be found on closer examination; propodos of the posterior pair produced at the tip beneath the dactylus, thus forming a minute chela. Pereiopoda rather strong, the 3 posterior pairs successively increasing in length; basal joint very broad, laminar; meral joint likewise considerably dilated, especially in the third pair. Last pair of uropoda considerably projecting beyond the preceding pair, rami subequal, denticulated and setous. Telson elongated and narrow, deeply cleft.

Remarks. — The present genus was established by Costa as early as 1851 for a Mediterranean species *C. Hopei,* to which was subsequently added by the same author another species *C. punctatum.* The genus *Scopelocheirus* established by Sp. Bate in 1855 for a British species, is undoubtedly identical with the genus of Costa and thus must cede to the elder name *Callisoma.* It is a very distinct genus, differing from the other Lysianassidæ both in the structure of the oral parts and especially in that of the gnathopoda, the anterior pair of which are very peculiarly constructed. Two closely allied, though evidently distinct, species belong to the Fauna of Norway.

13. **Callisoma crenata,** Sp. Bate.

(Pl. 19, fig 1).

Scopelocheirus crenatus, Sp. Bate, Brit. Assoc. Report 1855.

Body rather robust, with broadly rounded back. Cephalon comparatively small, lateral corners but slightly projecting and narrowly rounded. First pair of coxal plates rather broad, completely obtecting at the sides the buccal mass, their anterior and inferior edges forming a quite continuous curve; 4th pair deeply emarginated posteriorly and below the emargination angularly produced; 5th pair much broader than they are deep. Last pair of epimeral plates of metasome rounded at the lateral corners, posterior edge irregularly crenulated. First segment of urosome having dorsally a deep transversal incision, below which there is a rounded carina. Eyes broadly oval, pigment reddish brown with an orange-coloured coating. Superior antennæ about twice the length of the cephalon, peduncle short and thick, especially in the male; flagellum 10—12-articulate, 1st joint in female about the length of the 3 succeeding joints combined, in male nearly occupying the half length of the flagellum; accessory appendage 3-articulate. Inferior antennæ in female twice the length of the superior, flagellum composed of 23—24 joints. Anterior gnathopoda very slender, propodos about the length of the carpus, slightly constricted on the middle. Posterior gnathopoda likewise very slender, propodos much shorter than the carpus. Basal joint of 3rd pair of pereiopoda very much dilated and broader than that of the 2 succeeding pairs. Last pair of uropoda with the inner ramus fully as long as the outer and acuminated at the tip. Telson very elongated and narrow, nearly three times as long as it is broad, cleft beyond the middle; terminal lobes very narrow and armed each with an apical and a dorsal denticle. Colour yellowish, with numerous orange-coloured pigmentary spots, causing the back to assume a more or less reddish orange hue. Length of adult female $9^1/_2$ mm.

Remarks. — This is the species on which Sp. Bate founded his genus *Scopelocheirus.* It is easily known from most other Lysianassidæ by its thickish glabrous body densely speckled with orange-coloured pigmentary spots, and by the very conspicuous dorsal incision on the 1st segment of the urosome.

Occurrence. — I have met with this form in several places both on the south and west coasts of Norway at depths varying from 20 to 100 fathoms. Quite recently I collected it rather plentifully in the Trondhjemsfjord from dead fishes fastened on the fishermen's lines.

Distribution. — British Isles, Shetland.

14. **Callisoma Kröyeri,** (Bruzelius).

(Pl. 19, fig. 2).

Anonyx Kröyeri, Bruzelius, Skand. Amphip. Gammar. p. 45, Pl. II, fig. 7.

Very like the preceding species, but of smaller size and having the coxal plates less deep. Cephalon relatively somewhat larger, with the lateral corners scarcely projecting. Last pair of epimeral plates of metasome rounded at the lateral corners, posterior edge smooth. First segment of urosome provided dorsally with a similar, though not quite so deep, incision as in *C. crenata.* Eyes broadly oval, dark brownish. Antennæ very like those organs in *C. crenata,* but with a less number of articulations on the flagella. Buccal mass distinctly projecting beneath the anterior coxal plates. Gnathopoda comparatively less slender, propodos of the anterior ones much longer than the carpus and of uniform breadth throughout. Basal joint of the 3 posterior pairs of pereiopoda less dilated than in *C. crenata.* Last pair of uropoda with the inner ramus a little shorter than the outer, but scarcely narrower. Telson shorter than in *C. crenata,* about twice as long as broad, and cleft almost to the base. Colour yellowish, with dark brown intestine and without distinct pigmentary spots. Length of adult female $5^1/_2$ mm.

Remarks. — Although very closely related to the preceding species, this form may be readily distinguished, not only by its inferior size, but by the different proportions of the joints of the several legs and by its uniform yellowish colour.

Occurrence. — The only locality in which I have hitherto met with this species is at Bejan, at the entrance of the Trondhjemsfjord. It occurred here not rarely in a depth of 30—40 fathoms. According to Bruzelius it has also been found on the coast of Finmark.

Distribution. — Coast of Bohuslän (Bruzelius).

Gen. 13. **Hippomedon,** Boeck 1870.

Body slender and compressed, with rather deep though narrow coxal plates. Anterior part of mesosome (comprising the 4 anterior segments) scarcely as long as the posterior part. Metasome powerfully developed, with large epimeral plates, those of the last pair terminating with a sharp upturned hook-like projection. Cephalon comparatively small; eyes imperfectly developed. Superior antennæ with the joints of the peduncle more or less produced at the end anteriorly, flagellum of moderate size with the 1st joint very large, accessory appendage comparatively small. Inferior antennæ much longer than the superior; flagellum in both sexes, but especially in the male, very slender and composed of numerous articulations; flagella of both pairs of antennæ in male provided with distinct calceolæ. Epistome not at all projecting. Anterior lip rather small and rounded in front. Posterior lip strongly chitinized, with short and blunt lateral corners. Mandibles short and strong, with the molar expansion rather large and massive, truncated at the tip, palp very elongated and originating nearer the end of the mandible than does the latter. First pair of maxillæ with the masticatory lobe strongly incurved and only armed with a limited number of denticulated spines, the basal lobe short and oval, with 2 curved plumose setæ at the tip; palp with the terminal joint gradually expanded distally and armed at the obliquely truncated tip with a dense series of short spines. Second pair of maxillæ with the lobes short and broad, the inner one setous both at the tip and the inner edge. Maxillipeds comparatively short, masticatory lobe large, with the inner edge straight and armed with a dense row of blunt denticles; palp robust, only slightly reaching beyond the masticatory lobe; terminal joint claw-like. Anterior gnathopoda very slender, carpus elongated, propodos oblong ovate, palmar edge very oblique and indistinctly defined, dactylus slender. Posterior gnathopoda of the usual structure, propodos short, scarcely produced beneath the small dactylus. Pereiopoda rather slender, basal joint of the 3 posterior pairs large and laminar. Branchial lamellæ of 3rd and 4th pair provided with a digitiform supplementary ramus and a few short lobes at the opposite side; a 5th pair of small branchial lamellæ present. Last pair of uropoda considerably projecting beyond the preceding pair; rami elongated, subequal, not setous, but armed with small denticles on the edges, the outer one with a distinct terminal joint. Telson oblong, deeply cleft.

Remarks. — The present genus, established by Boeck, is well distinguished from the other Lysianassid genera both by the outer habitus and by several anatomical characters, among others by the very slender form of the inferior antennæ and of the anterior gnathopoda. The eyes are imperfectly developed and disappear, as a rule, completely in specimens preserved in alcohol. In the northern Ocean occur 5 species of this genus, 4 of which are to be described in the following pages, the 5th being the *Lysianassa abyssi* of Goës. Besides, the Rev. Mr. Stebbing has described 4 species from the Challenger Expedition. The genus *Platamon* of the latter author is very nearly related to the present genus, only differing by a somewhat different structure of the posterior gnathopoda.

15. **Hippomedon denticulatus,** (Sp. Bate).

(Pl. 20).

Anonyx denticulatus, Sp Bate, Cat. Amphip Crust. Brit. Mus. p 75.
Syn: Hippomedon Holbølli, Boeck (not Kröyer).

Body glabrous, compressed, but with the back evenly vaulted. Cephalon scarcely as long as the 2 first segments of the mesosome combined, lateral corners but slightly projecting, acute. First pair of coxal plates much broader than the succeeding pair, and dilated inferiorly so as completely to obtect the buccal mass laterally; 4th pair about twice as deep as the body, forming posteriorly an acute-angled projection; 5th pair comparatively small, broader than they are deep. Last pair of epimeral plates of metasome jutting out posteriorly as a narrow lanceolate upturned projection defined from the posterior edge by a distinct incision. First segment of urosome not forming any dorsal projection. Integuments smooth, without any distinct sculpturing. Eyes narrow, linear, slightly widened below, with no trace of lenses; pigment light red with a few opake white stripes transversally.

Superior antennæ with the 1st and 2nd joints of the peduncle produced anteriorly to blunt tooth-like projections; flagellum in female only little, in male nearly 4 times longer than the peduncle, 1st joint in female as long as the remainder 10 joints combined; accessory appendage scarcely longer than the latter, 3-articulate. Inferior antennæ in female more than twice the length of the superior, in male about as long as the body, last joint of the peduncle nearly twice the length of the penultimate one. Anterior gnathopoda with the basal joint as long as the meral and carpal joints combined, propodos half the length of the former, palmar edge finely denticulated. Dactylus of the pereiopoda scarcely more than half the length of the propodos. Last pair of uropoda with the rami about twice the length of the basal part, terminal joint of the outer ramus very small. Telson nearly twice as long as broad, cleft beyond the middle, the incision very narrow in its anterior part; terminal lobes obtusely acuminate, each with a small apical denticle and another dorsal near their base. Body whitish, pellucid, with a few orange-coloured pigmentary bands dorsally across the segments of the metasome. Length of female reaching 14 mm., of male 11 mm.

Remarks. — This form has been erroneously identified by Boeck and most subsequent authors with Kröyer's *Anonyx Holbølli,* which latter according to the recent statements of Dr. Hansen is a very distinct species not occurring out of the arctic seas. The present species is easily distinguished both from the said arctic form and from the succeeding new species by the strong dentiform projections formed by the 2 first peduncular joints of the superior antennæ and especially by the peculiar form of the posterior projection of the last epimeral plates of the metasome.

Occurrence. — I have met with this form only on the south and west coasts of Norway. It occurs in comparatively shallow water, from 6 to 20 fathoms, especially on sandy bottom, and buries itself with great dexterity within the loose bottom-deposit. Occasionally it also descends to considerable depths, 60—100 fathoms.

Distribution. — Bohuslän, Denmark, British Isles, France, Mediterranean (taken by the author at Naples).

16. **Hippomedon propinqvus,** G. O. Sars, n. sp.

(Pl. 21, fig. 1).

Very like the preceding species, but of somewhat smaller size. Lateral corners of cephalon narrowly rounded at the tip. First pair of coxal plates not nearly so strongly dilated as in *H. denticulatus*, and scarcely broader than the succeeding pair. Posterior corner of the last pair of epimeral plates of metasome acutely triangular and not defined from the posterior edge by any incision. First segment of urosome slightly produced dorsally. Integuments very finely and irregularly reticulated. Eyes about as in H. denticulatus. Superior antennæ with the joints of the peduncle less produced anteriorly. Inferior antennæ with the last joint of the peduncle only very little longer than the penultimate one. Anterior gnathopoda comparatively more slender than in *H. denticulatus,* basal joint longer than the meral and corpal joints combined. Dactylus of the pereiopoda very slender, nearly as long as the propodos. Last pair of uropoda with the outer ramus a little longer than the inner, terminal joint considerably larger than in H. denticulatus. Telson comparatively narrower, with 2 or 3 pairs of dorsal denticles, the incision deeper. Body whitish, pellucid, with dark red ovaries, urosome and oral region partly tinged with crimson. Length of adult female 10 mm.

Remarks. — Although very nearly related to *H. denticulatus,* this species may at once be distinguished by the less produced peduncular joints of the superior antennæ, the narrower anterior coxal plates, and especially by the different form of the posterior projection of the last pair of epimeral plates of the metasome.

Occurrence. — This species seems to have a more northern range than the preceding. The most southern locality where I have met with it is the Trondhjemsfjord. On the other hand, it is very common on the whole coast of Nordland and Finmark up to Vadso. It occurs in depths varying from 20 to 100 fms.

17. **Hippomedon Holbølli,** (Kröyer).

(Pl. 21, fig. 2).

Anonyx Holbølli, Kröyer, Nat. Tidsskr. 2 R. Bd. 2, p. 6.

Form of body about as in the two preceding species. Cephalon transversally truncated anteriorly, the lateral corners being not at all produced. Coxal plates as in *H. propinqvus.* Posterior projection of last pair of epimeral plates of metasome triangular, much shorter than in that species and, as in the latter, not defined from the posterior edge by any incision. First segment of urosome with a very conspicuous compressed gibbous projection dorsally. Integuments very distinctly sculptured with close set delicate longitudinal striæ partly anastomosing with each other, the striation being also continued on the peduncle of the superior antennæ and partly down the sides of the coxal plates. Eyes with a very conspicuous watchglass-formed lens near the lateral corners. Superior antennæ with the joints of the peduncle not at all produced anteriorly, accessory appendage 4-articulate. Inferior antennæ about as in *H. propinqvus.* Anterior gnathopoda with the propodos comparatively shorter than in the 2 preceding species. Dactylus of the pereiopoda rather elongated. Last pair of uropoda scarcely different from those in *H. propinqvus.* Telson, on the other hand, comparatively broader, with the incision less narrowed anteriorly. Length of young male 16 mm.

Remarks. — Although the present species cannot properly be referred to the Norwegian fauna, heving not yet been found out of the polar seas, I have thought it right to describe and figure it here, in order to elucidate more closely, than has been done by Dr. Hansen, the characters by which this form is distinguished both from *H. denticulatus* and *propinqvus.* Among these characters the peculiar sculpture of the integuments, the presence of a distinct ocular lens, and the comparatively short posterior projection of the last pair of epimeral plates of the metasome are the most conspicuous. The figures here given are drawn from a specimen procured on the Norwegian North Atlantic Expedition off Jan Mayen. Also the form mentioned and figured by the author in his Report on the Crustacea of the said Expedition, as *H. Holbølli, var.,* must, in spite of the total absence of eyes, be referred to the present species, as the integuments in most of the specimens exhibit a very similar close striation as in the typical form.

Distribution. — Arctic Ocean: Greenland, Spitsbergen, Jan Mayen, the Murman coast, the White Sea, Matotschinskar.

Gen. 14. **Orchomene,** Boeck, 1870.

Body, as a rule, rather thickset, with the segments of mesosome gradually increasing in size posteriorly, and the coxal plates very large. Last pair of epimeral plates of metasome not produced at the infero-lateral corners, posterior edge more or less coarsely serrated. Superior antennæ comparatively short, with the accessory appendage well developed. Inferior antennæ in female about the length of the superior, with the antepenultimate joint of the peduncle rather produced, in male very slender and elongated, with the flagellum filiform and provided, like that of the superior ones, with distinct calceolæ. Epistome projecting in front of the anterior lip as a more or less prominent rounded lamina, overhanging the anterior lip in front. Posterior lip strongly chitinized, with projecting lateral corners. Mandibles elongated, with the molar expansion very small; palp slender, originating much nearer the base than does the latter. First pair of maxillæ with the masticatory lobe almost transversely truncated at the tip and armed with strong denticulated spines, the basal lobe elongated, tapering, with 2 small apical setæ; palp normal. Second pair of maxillæ with both lobes elongated and narrow, setous at the tip only. Maxillipeds with the masticatory lobe very large, oval, slightly crenulated on the inner edge, palp comparatively small. Anterior gnathopoda short and stout, subcheliform; propodos truncated at the tip, with a distinctly defined palmar edge; dactylus short and curved. Posterior gnathopoda slender, propodos slightly produced beneath the minute dactylus. Pereiopoda comparatively short, basal joint of the 3 posterior pairs very large and laminar. Last pair of uropoda in female scarcely reaching beyond the preceding pair, rami partly denticulated at the edges; in male much larger, with the inner edge of both rami provided with plumose setæ. Telson comparatively small, not reaching beyond the basal part of the last pair of uropoda, and more or less deeply incised posteriorly.

Remarks. — The present genus has been established by Boeck in order to include some species formerly referred to the genus *Anonyx* but differing materially in the structure of the oral parts. The genus would seem to include numerous species from different parts of the Oceans. Besides the 5 northern species here described, 3 new species have been recorded by the Rev. Mr. Stebbing from the Challenger Expedition, 2 of which, however, may more properly be referred to the genus *Orchomenopsis* to be described in the sequel; and of the several exotic species referred by earlier authors to the genus Anonyx some may perhaps on closer examination be found to belong to the present genus.

18. **Orchomene Batei,** G. O. Sars.

(Pl. 22).

Orchomene Batei, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 81.
Syn: Anonyx Edwardsii, Sp. Bate (not Kröyer).
? Anonyx melanophthalmus, Norman.

Body more slender than in the other species, especially in the male. Cephalon with the lateral corners rather projecting, in female broadly rounded, in male narrow linguiform. Coxal plates of moderate size, the 4 anterior pairs about twice as deep as the body, 5th pair broader than they are deep. Last pair of epimeral plates of metasome nearly rectangular, posterior edge irregularly and minutely crenulated. First segment of urosome with a slight dorsal indentation at the base, more distinct in the male. Eyes oval or slightly reniform, much larger in male than in female, pigment (in adult specimens) dark reddish brown. Superior antennæ in female about the length of the cephalon and the 1st segment of mesosome combined, flagellum scarcely longer than the peduncle, 8-articulate, 1st joint as long as the 3 succeeding ones combined, accessory appendage half the length of the flagellum, 5-articulate. Inferior antennæ in male fully as long as the body, with the peduncular joints considerably expanded. Epistomal plate narrow linguiform, and considerably projecting in front. Anterior gnathopoda very short and stout, propodos about the length of the carpal and meral joints combined, distinctly tapering distally. Posterior gnathopoda with the propodos very narrow, oblong linear, upper edge provided with unusually coarse spiniform bristles, arranged in several transverse rows. Last pair of uropoda in female with the inner ramus shorter than the basal joint of the outer, simple mucroniform, without any lateral denticles. Telson in female oblong quadrangular, scarcely tapering distally, with 2 pairs of dorsal denticles, posterior incision very shallow and broad; in male considerably more elongate, with the posterior incision much narrower. Body cream-coloured, each segment of the mesosome having a small reddish pigmentary speck at the infero-posterior corners. Length of female 7 mm., of male 8 mm.

Remarks. — I think there can be little doubt that the present form is that described by Sp. Bate as *Anonyx Edwardsii.* That, however, the species so named by Kröyer is very different and even belongs to another genus, viz., *Onesimus,* was first pointed out by Boeck. But the latter author was certainly wrong in identifying the British form with his *Orchomene serratus,* and for this reason I found it right in my «Oversigt» to give the species a new name, proposing for it that of *O. Batei.* I am now, however, somewhat uncertain whether the species shortly characterised by Norman in his Shetland Report as *Anonyx melanophthalmus* may not be this species, in which case the specific denomination proposed by that author ought to be retained. The species in question is easily known from the other forms of this genus, not only by its comparatively small size, but by the less robust form of the body, and by the shallow incision of the telson in the female. The pigment of the eyes is in living specimens dark reddish brown (somewhat lighter in young), but becomes in specimens preserved in spirit almost black.

Occurrence. — I have only met with this form in a few localities off the south and west coast of Norway. In one of these localities (Folgero) it occurred rather plentifully at a depth of 20—40 fathoms among Ascidiæ and Hydroidæ.

Distribution. — British Isles, Shetland (?), coast of France (Chevreux).

19. **Orchomene serratus,** Boeck.

(Pl. 23, fig. 1).

Orchomene serratus, Boeck, Crust. Amphip. bor & arctica, p. 35.

Body comparatively robust, with broadly vaulted back. Lateral corners of cephalon considerably projecting and obtusely rounded at the tip, in male much narrower than in female. Coxal plates rather large, the 4 anterior pairs more than twice as deep as the body, 5th pair about as deep as broad. Last pair of epimeral plates of metasome nearly right-angled, posterior edge straight and very coarsely serrated, number of serrations 16—20. First segment of urosome transversally impressed at the base and having behind an evenly rounded dorsal carina. Eyes narrow oval, tapering above, pigment dark brown, with a somewhat lighter reddish coating. Antennæ about as in *O Batei.* Epistomal plate very like that in the latter species, but somewhat broader and less projecting. Anterior gnathopoda less robust than in the said species, propodos fully as long as the carpal and meral joints combined and nearly of uniform breadth throughout. Basal joint of the 3 posterior pairs of pereiopoda fully as long as the remainder part of the leg. Last pair of uropoda in female with the inner ramus shorter than the basal joint of the outer and armed on the inner edge with 3 denticles. Telson broadly ovate, tapering distally, with 3 pairs of dorsal denticles, cleft very narrow and extending to about the middle of the telson. Colour more or less yellowish or ochraceous, with dark brown intestine. Length of adult female 10 mm.

Remarks. — This form, confounded by Boeck with the preceding species, may be easily known from the latter by its much more plumpy body, the narrower lateral corners of the cephalon, the more slender anterior gnathopoda, but especially by the very coarse serrations of the last pair of epimeral plates of the metasome. It also attains a considerably larger size than that species.

Occurrence. — The species would seem to occur along the whole coast of Norway up to Finmark in moderately deep water, from 30 to 100 fathoms. Boeck collected it at Skudesnæs and Lyngholmen, the latter locality lying in the outer part of the Hardangerfjord.

Distribution. — The Norse Island, Spitsbergen (collected on the Norwegian North Atlantic Expedition); the Siberian Polar Sea (Stuxberg).

20. **Orchomene crispatus,** (Goës).

(Pl. 23, fig. 2).

Lysianassa crispata, Goës, Crust. amphip. maris Spitsbergiæ, p. 3, fig. 3.

Body very robust and plumpy, with broadly vaulted back. Cephalon comparatively short, lateral corners greatly projecting and acuminated at the tip. Coxal plates very large, the 4 anterior pairs nearly three times as deep as the body and quite concealing laterally the buccal mass, 5th pair fully as deep as broad. Last pair of epimeral plates of metasome rounded at the infero-lateral corners, posterior edge straight and finely serrated throughout. First segment of urosome without any dorsal projection. Eyes very narrow, oblong linear, pigment reddish brown with a light orange-coloured coating. Superior antennæ with the 1st joint of the peduncle unusually narrow and elongated, almost as long as the whole remainder part of the antenna, flagellum 9-articulate with the 1st joint rather short, accessory appendage slender, 6-articulate. Epistomal plate much broader than in the 2 preceding species, but less projecting, obtusely truncated at the tip. Anterior gnathopoda rather strong, propodos very elongated, much longer than the carpal and meral joints combined, and gradually tapering to the transversally truncated extremity. Basal joint of the 3 posterior pereiopoda very much expanded, that of the last pair almost rectangular in form. Last pair of uropoda with the rami comparatively coarser and broader than in the other species. Telson short and broad, with 2 pairs of dorsal denticles, cleft rather broad and not quite extending to the middle of the telson. Body more or less distinctly flesh-coloured, especially on its anterior part. Length of adult female reaching 12 mm.

Remarks. — Boeck has erroneously identified the present form, detected by Goës, with his *O. serratus.* As will be seen from the above given diagnosis and the accompanying figures, it represents in reality a very distinct species, differing from O. serratus both as to the form of the body and in several anatomical characters. It is now for the first time added to the Norwegian fauna.

Occurrence. — I have met with this form in a few localities off the west coast of Norway and quite recently also in the Trondhjemsfjord. It occurs, as a rule, in very deep water, especially in the region of the deep-sea corals, depth from 100 to 200 fathoms.

Distribution. — Spitsbergen (Goës).

21. **Orchomene pectinatus,** G. O. Sars.

(Pl. 23, fig. 3).

Orchomene pectinatus, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 80, Pl. 3, fig. 5.

Form of body about as in *O. serratus*, though perhaps a little more robust. Lateral corners of cephalon acute, less projecting than in *O. crispatus.* Coxal plates rather large, the 4 anterior pairs about twice as deep as the body; 1st pair considerably dilated below, without however completely concealing the buccal mass laterally, 5th pair somewhat narrower than in *O. serratus.* Last pair of epimeral plates of metasome rounded at the infero-lateral corners, posterior edge slightly arched and divided into very coarse and sharp somewhat upturned serrations, 12—16 in number. First segment of urosome produced dorsally to a high compressed projection, sharply angulated at the tip. Eyes narrow, slightly sigmoid in form, with imperfectly developed visual elements; pigment very pale, almost cream-coloured. Superior antennæ with the 1st joint of the peduncle very large and tumid; flagellum slender, 12—13-articulate; accessory appendage about half its length and 6—7-articulate. Epistomal plate of very considerable size and greatly projecting, evenly rounded in front. Anterior gnathopoda rather slender, propodos only little longer than the carpus and very slightly tapering distally. Last pair of uropoda with the inner ramus fully as long as the basal joint of the outer, and provided at the inner edge with 4 denticles. Telson very small, with 2 pairs of minute dorsal denticles, cleft extending about to the middle and gradually widening posteriorly. Colour pale greyish white. Length of adult female reaching 12 mm.

Remarks. — Though very nearly related to the two preceding species, this form may at once be distinguished by the imperfectly developed and pale coloured eyes, the large and projecting epistomal plate, the very coarse serrations of the last pair of epimeral plates of the metasome, and lastly by the high compressed dorsal projection of the 1st segment of the urosome.

Occurrence. — I first detected this form in the Varangerfjord at Bugo, where a few specimens were collected at a depth of about 120 fathoms. In no other parts of the Norwegian coast have I yet met with it.

Distribution. — North Atlantic: outside the great fishing banks off the N.-West coast of Norway (Stat. 124, 192, 251 of the Norwegian North Atlantic Expedition); Arctic Ocean W of Beeren Eiland (Stat. 312 of same Expedition).

22. **Orchomene amblyops,** n. sp.
(Pl. 25, fig. 1).

Body a little more slender than in the 3 previously described species. Lateral corners of cephalon but slightly produced and distinctly angular at the tip. Coxal plates rather large, the 4 anterior pairs about twice as deep as the body, 1st pair considerably expanded below and to a great extent concealing the buccal mass laterally, 5th pair about as deep as broad. Last pair of epimeral plates of metasome rounded at the infero-lateral corners, posterior edge sligtly arched and regularly serrated, number of serrations 14—16. First segment of urosome with a very conspicuous triangular hump-like dorsal projection, obtuse at the tip. Eyes oblong oval considerably dilated below, visual elements imperfectly developed, pigment light orange-coloured with a faint whitish reticulation. Antennæ almost exactly as in *O. serratus.* Epistomal plate, on the other hand, considerably broader and nearly of the same form as in *O. crispatus.* Anterior gnathopoda somewhat more slender than in *O. serratus*, propodos longer than the carpal and meral joints combined, scarcely at all tapering, tip transversally truncated. Posterior gnathopoda with the propodos much narrower than in that species, and provided with much coarser spiniform bristles. Pereiopoda comparatively more slender, basal joint of the 3 posterior pairs not nearly so long as the remainder part of the leg. Last pair of uropoda with the inner ramus shorter than the basal joint of the outer, the latter with 3 rather slender ciliated setæ on the inner edge. Telson comparatively small, with 3 pairs of dorsal denticles, cleft extending to about the middle and gradually widening posteriorly. Colour whitish with a faint tinge of yellow on the anterior part. Length of adult female 8 mm.

Remarks. — This new species is intermediate in character between *O. serratus* and *pectinatus.* From the former it is distinguished by the comparatively short and angular lateral corners of the cephalon, the imperfectly developed eyes, and the hump-like dorsal projection of the 1st segment of the urosome; from the latter by the different form of the epistomal plate, the less coarse serrations of the last pair of epimeral plates of the metasome, and by the more blunted form of the dorsal projection of the 1st segment of the urosome.

Occurrence. — I have met with this form in a few localities off the west coast of Norway, and, besides, in the Trondhjemsfjord and at Apelvær in Namdalen. It is a true deep-water form, only occurring in greater depths, from 100 to 200 fathoms.

Gen 15. **Orchomenella,** G. O. Sars, n.

Syn: Orchomene, Boeck (ex parte).

Body more or less plumpy, with large coxal plates. Last pair of epimeral plates of metasome scarcely serrated posteriorly, infero-lateral corners blunt or slightly produced. Superior antennæ about as in *Orchomene*; inferior ones, as a rule, more slender and elongated than the superior, in male scarcely as long as the body. Epistome less projecting than in that genus, and evenly rounded or flattened in front. Mandibles of somewhat coarser structure than in *Orchomene*, molar expansion comparatively larger and blunted at the tip, palp slender and not originating so near the base as in the latter genus. First pair of maxillæ with the masticatory lobe very obliquely truncated at the tip, spines partly lamellar and finely denticulated at one of their edges, basal lobe and palp about as in *Orchomene*. Second pair of maxillæ with the lobes less elongated. Maxillipeds with the masticatory lobe comparatively smaller and oblong in form, but the palp, on the other hand, larger. Anterior gnathopoda rather strong, subcheliform, posterior ones less slender than in *Orchomene;* propodos short, dilated distally and densely hirsute, apex slightly produced beneath the minute dactylus. Pereiopoda comparatively short, basal joint of the 3 posterior pairs large and laminar. Last pair of uropoda in female about as in *Orchomene*, in male but slightly modified, outer ramus only setiferous. Telson larger than in that genus, reaching beyond the basal part of the last pair of uropoda, form oblong triangular, cleft very narrow fissure-like.

Remarks. — I have seen fit to establish this new genus, in order to include some small species formerly referred partly to the genus *Orchomene*, partly to that of *Anonyx* and *Tryphosa*, but agreeng pretty well with each other in certain structural details, so as to form a natural group, which undoubtedly has its nearest ally in the genus *Orchomene*. Besides the 4 species described below, the form recorded by the Rev. Mr. Stebbing from the Challenger Expedition as *Tryphosa barbatipes* may perhaps more properly be referred to the present genus.

23. **Orchomenella minuta,** (Kröyer).

(Pl. 24, fig. 1).

Anonyx minutus, Kröyer, Nat. Tidsskr. 2 R. Bd. 2, p. 23.

Body short and thick, with broadly vaulted back. Lateral corners of cephalon slightly produced, in female almost right-angled, in male rather narrow and acute at the tip. Coxal plates very large, the 4 anterior pairs more than twice as deep as the body, 1st pair scarcely expanding below, 5th pair deeper than they are broad and forming at the infero-posterior corner a projecting triangular lobe. Last pair of epimeral plates of metasome with the infero-lateral corners a little produced, posterior edge smooth. First segment of urosome having a slight transversal depression at the base. Eyes oval, somewhat narrowed above, pigment light red. Superior antennæ with the 1st joint of the peduncle rather large, flagellum scarcely longer than the peduncle, 10-articulate, with the 1st joint about as long as the 3 succeeding ones combined; accessory appendage scarcely half the length of the flagellum, 4—5-articulate. Inferior antennæ in female only little longer than the superior, flagellum 10—12-articulate. Epistome slightly projecting in front of the anterior lip and evenly rounded. Anterior gnathopoda comparatively slender, propodos about as long as the carpus and very slightly tapering to the somewhat obliquely truncated tip. Pereiopoda unusually short, with the dactylus very minute; basal joint of the 3 posterior pairs very large, longer than the remainder part of the leg. Last pair of uropoda with the inner ramus fully as long as the basal joint of the outer, the latter provided (in female) with a single seta on the inner edge. Telson nearly twice as long as broad, cleft beyond the middle, lateral lobes slightly diverging at the tip. Body pale yellowish red, or flesh-coloured, each segment having at the infero-lateral corners a small orange-coloured speck. Length of adult female scarcely exceeding 6 mm.

Remarks. — The present species was first described by Kröyer as an *Anonyx* and subsequently referred by Boeck to his genus *Orchomene.* It may be regarded as the type of the genus.

Occurrence. — The species would seem to occur along the whole coast of Norway, but is especially very frequent in the Arctic region, off the coast of Nordland and Finmark, in moderate depths, from 20 to 50 fathoms.

Distribution. — Arctic Ocean: Greenland, Spitsbergen, the Murman Coast, the Siberian Polar Sea (Stuxberg); ? British Isles (Sp. Bate); ? Adriatic (Heller).

24. **Orchomenella pingvis,** (Boeck).

(Pl. 24, fig. 2).

Orchomene pingvis, Boeck, Crust. amphip, bor. & arctica, p. 36.

Very like the preceding species in its general habitus, though perhaps somewhat thicker in proportion to its height. Lateral corners of cephalon narrowly rounded at the tip. Coxal plates not fully as deep as in *O. minuta,* 1st pair distinctly expanded below, 5th pair exhibiting a similar projecting lobe at the infero-posterior corners as in that species. Last pair of epimeral plates of metasome rounded at the infero-lateral corners, posterior edge minutely crenulated. First segment of urosome with a distinct and rather deep transversal depression dorsally. Eyes narrow reniform, pigment light red. Superior antennæ rather like those organs in the preceding species, but with the 1st joint of the flagellum comparatively larger, especially in the male. Inferior antennæ in female considerably longer than the superior, the flagellum being rather slender and composed of about 15 joints. Epistome scarcely projecting in front of the anterior lip, though being defined from the same by a distinct incision. Anterior gnathopoda considerably shorter and stouter than in *O. minuta*, carpal joint rather short, propodos about twice its length and distinctly tapering to the transversally truncated tip. Pereiopoda comparatively more powerful, with the dactylus much stronger; basal joint of the 3 posterior pairs shorter than the remainder part of the leg, that of the 3rd pair more evenly rounded than in *O. minuta.* Last pair of uropoda with the inner ramus scarcely as long as the basal joint of the outer, the latter provided in female with 3 setæ on the inner edge. Telson regularly tapering distally and cleft beyond the middle, the terminal lobes not at all diverging. Colour whitish. Length of adult female $7^1/_2$ mm.

Remarks. — In its general habitus this species shows so great a resemblance to *O. minuta* as easily to be confounded with it, at least if the specimens examined are preserved in spirits. On a closer examination, however, several well marked characters will be found to distinguish it from that species, among others the narrow reniform eyes, the slender inferior antennæ, the much shorter and stouter anterior gnathopoda, the more powerful structure of the pereiopoda, and lastly the form and armature of the last pair of epimeral plates of the metasome.

Occurrence. — I had not myself been aware of this species before Mr. Schneider last year sent me some detail-drawings of a supposed new species of *Orchomene* found by him in the Malangenfjord, Finmark. On comparing these drawings with the figures and description given by Boeck of his *Orchomene pingvis,* I found so much agreement that I could not but believe both forms to be identical. Subsequently, on looking over the vast material of *O. minuta* collected by me at different times and in different places, I succeeded in picking up several specimens of the same form, both males and females, and have now convinced myself that this species is in reality the *O. pingvis* of Boeck. In what locality my specimens were collected I cannot, however, say with certainty, but believe them to be from the west coast of Norway. Boeck himself found only a single specimen at Mandal, south coast of Norway, and mentions another specimen taken at Lofoten in a depth of 200—300 fathoms.

Distribution. — Siberian Polar Sea (Stuxberg).

25. **Orchomenella ciliata**, G. O. Sars

(Pl. 25, fig. 2).

Tryphosa ciliata, G. O. Sars, Oversigt over Norges Crustaceer I., p. 81, Pl. 3. fig. 4.

Body comparatively short and stout. Lateral corners of cephalon rather projecting and broadly rounded in female, somewhat narrower in male. Coxal plates of moderate size, the 4 anterior pairs about twice as deep as the body; 1st pair scarcely expanding below; 5th pair about as deep as broad, infero-posterior angle but slightly produced. Last pair of epimeral plates of metasome rounded at the infero-lateral corners, posterior edge smooth. First segment of urosome with a deep transversal depression dorsally. Eyes rather large, oval, widening below, pigment light red. Superior antennæ with the 1st joint of the peduncle very large and thick; flagellum only slightly exceeding the length of the peduncle and composed in female of 8, in male of 12 articulations, the 1st of which is very large and densely ciliated, especially in the male; accessory appendage scarcely half the length of the flagellum, 3-articulate, 1st joint large, slightly dilated and furnished with dense fascicles of slender setæ on the lower edge. Inferior antennæ in female but little longer than the superior, in male about half as long again. Epistome flattened in front and not projecting beyond the anterior lip. Anterior gnathopoda rather robust, propodos a little longer than the carpus and slightly tapering to the transversely truncated extremity. Posterior gnathopoda not very slender, propodos oval, fully half as long as the carpus and obtusely produced beneath the minute dactylus. Pereiopoda comparatively short; basal joint of the 3 posterior pairs, and especially that of the last pair, rather expanded and nearly as long as the remainder part of the leg. Last pair of uropoda in female with the inner ramus shorter than the basal joint of the outer, tip bidentate, outer one with 3 slender setæ on the inner edge. Telson rather broad, triangular, with a single pair of dorsal denticles, cleft very narrow, extending beyond the middle. Colour greyish white, without any distinct pigmentation. Length of adult female scarcely exceeding 5 mm.

Remarks — I first described this form as a *Tryphosa* owing to its general resemblance to the species of that genus. On closer examination of the oral parts I have, however, now found, that it cannot properly be referred to that genus but must be regarded as a true *Orchomenella*.

Occurrence. — The only place where I have hitherto met with this species is outside the sandy beaches of Jaederen, south coast of Norway. It occurred here rather sparingly in comparatively shallow water together with *Bathyporeia pilosa*, Lindstrom.

Distribution. — Coast of France (Chevreux).

26. **Orchomenella groenlandica** (Hansen).

(Pl. 26, fig. 1.)

Anonyx groenlandicus, Hansen, Malacostraca marina Grönlandiæ occidentalis. p. 72, Pl. II, fig. 5.

Body less robust than in the other species of the genus. Lateral corners of cephalon slightly projecting and subangular at the tip. First pair of coxal plates much smaller than the succeeding ones, tapering inferiorly and having the anterior edge concaved; the 3 succeeding pairs about twice as deep as the body; 4th pair rather expanded below; 5th pair comparatively small, rounded, more broad than deep. Last pair of epimeral plates of metasome produced at the infero-lateral corners to a short upturned dentiform projection, posterior edge arcuate. First segment of urosome deeply depressed dorsally, and exhibiting below the depression a projecting carina terminating with a sharp point. Eyes oval, widening below, visual elements imperfectly developed, pigment dark red, with an opaque whitish coating. Superior antennæ with the peduncle short and thick, flagellum nearly twice its length and composed in female of 8, in male of about 14 articulations, the 1st of which is rather large; accessory appendage half the length of the flagellum, 4-articulate, 1st joint longer than the other 3 combined. Inferior antennæ in in female scarcely longer than the superior, in male somewhat more elongated, though not nearly twice as long. Epistome considerably projecting in front of the anterior lip, and evenly rounded. Mandibles somewhat stronger than in the other species, but otherwise of a quite similar structure. Anterior gnathopoda with the propodos as long as the carpal and meral joints combined, oblong quadrangular, nearly of uniform breadth throughout, palmar edge transversely truncated. Posterior gnathopoda rather slender, propodos half the length of the carpus, gradually widening distally and angularly produced beneath the minute dactylus. Pereiopoda of moderate length, basal joint of the 3 posterior pairs rather large and laminar. Last pair of uropoda in female with the inner ramus nearly as long as the outer, the latter whithout any setæ; in male somewhat larger, with both rami setous on the inner edge. Penultimate pair of uropoda in both sexes with the inner ramus indented near the tip and bearing immediately above the indentation a long spiniform seta. Telson oblong oval, nearly twice as long as broad, gradually tapering distally, with 2 pairs of dorsal denticles, cleft very narrow and extending beyond the middle. Colour whitish, pellucid. Length of adult female 7 mm.

Remarks. — At first I believed this form to be the *Lysianassa Martensi* of Goës, exhibiting, as it does, some points of apparent agreement; but, having had recently through the kindness of Prof. Lovén an opportunity of examining the type specimens of the Stockholm Museum, I find the form so named by Goës to be evidenty different and belonging to the genus *Anonyx* in the restriction adopted in the present work. That the *Anonyx groenlandicus* of Hansen is identical with the form here described, is beyond any doubt. It cannot, however, by any means be referred to the genus *Anonyx*, as it differs very materially from that genus in de structure of the oral parts, which on the other hand agrees pretty well with that in the genus *Orchomenella.* I therefore have referred it to the latter genus, although it would seem to differ from the other species in a few points, for instance in the structure of the last pair of uropoda in the male.

Occurrence. — Off the coast of Norway this species would seem to be wholly restricted to the arctic region. I have collected it in two places only, viz., at Mehavn, near Nordcap, and at Vardö, in a depth of 20 to 50 fathoms. It is now for the first time added to the Norwegian fauna.

Distribution. — West coast of Greenland (Hansen).

Gen. 16. **Nannonyx,** G. O. Sars, n.

Syn: Orchomene, Boeck (ex parte).

Body unusually short and stout, with large coxal plates and poorly developed metasome and urosome. Both pairs of antennæ in female very short and subequal in length, with the flagella only composed of a very restricted number of articulations. Peduncle of the superior antennæ very tumeficated; antepenultimate peduncular joint of the inferior ones long and slender. Epistome not distinctly defined from the anterior lip. Posterior lip comparatively narrow, lateral corners obliquely truncated. Mandibles much elongated, molar expansion very slight, palp comparatively small, originating near the base of the mandible. First pair of maxillæ with the masticatory lobe almost transversely truncated, basal lobe narrowly tapering, with a single apical seta, palp very small. Second pair of maxillæ with both lobes elongated and narrow, setous at the tip only. Maxillipeds well developed, with the basal part considerably dilated and exhibiting along the inferior edge a series of strong diverging setæ, masticatory lobe very large, oblong oval, slightly crenulated at the tip, basal lobe unusually elongated and narrow, nearly reaching to the end of the masticatory lobe; palp slender, with the terminal joint very small, knob-like. Anterior gnathopoda very robust, meral and carpal joints considerably expanded and provided inferiorly with a dense clothing of slender setæ, propodos likewise densely setous, gradually tapering, without any distinct palmar edge, dactylus extremely small. Posterior gnathopoda slender and only sparingly setous, propodos narrow linear, angularly produced at the tip beneath the minute dactylus. Pereiopoda short and stout, with the dactylus very small, basal joint of the 3 posterior pairs large and laminar. Last pair of uropoda extremely small, rami much shorter than the basal part and nearly bare. Telson small, sqvamiform, entire.

Remarks. — I have thought fit to establish this new genus soas to include the following small Lysianassid, referred by Boeck to his genus *Orchomene*, but differing in several points rather markedly so as more properly to be generically separated. The small size of the dactylus on the several legs has given rise to the generic name here proposed.

27. **Nannonyx Goësii**, (Boeck).

(Pl. 24, fig. 3)

Orchomene Goësii, Boeck, Crust. amphip. bor. & arct. p 36.

Body rather thickset, with broadly rounded back. Cephalon much shorter than the 1st segment of mesosome, lateral corners somewhat produced and broadly rounded at the tip. Anterior coxal plates more than twice as deep as the body; 1st pair obliquely truncated at the tip; 4th pair only very slightly emarginated behind, infero-posterior corners obtusely rounded; 5th pair rather large, a little more deep than broad. Metasome scarcely as long as the 3 posterior segments of mesosome combined, last pair of epimeral plates nearly rectangular, posterior edge slightly crenulated. Urosome very short, 1st segment with a hump-like dorsal projection. Eyes of moderate size, oval, pigment dark brown. Superior antennæ with the 1st joint of the peduncle very large, fully twice the length of the other 2 combined; flagellum only half the length of the peduncle and composed of 4 articulations only, the 1st of which is rather thick at the base and about as long as the other 3 combined, all the joints provided with unusually coarse sensitive bristles; accessory appendage about half the length of the flagellum and biarticulate. Inferior antennæ rather feeble, with the flagellum about as long as the penultimate peduncular joint and 4-articulate. Anterior gnathopoda very powerful, propodos obpyriform and about the length of the carpus, but much narrower. Posterior gnathopoda with the propodos about half the length of the carpus and very narrow. Basal joint of the 3 posterior pereiopoda rounded oval and about as long as the remainder part of the leg, meral joint rather expanded posteriorly. Last pair of uropoda with the inner ramus extremely small, about half the length of the outer and simple mucroniform. Telson rounded quadrangular, nearly as broad as long, tip transversely truncated, with 2 apical denticles and 2 small spiniform bristles on each side. Body yellowish, each segment having a bright orange-coloured transversal band partly extending down the coxal and basal joints of the 3 posterior pairs of pereiopoda; ova in the marsupial pouch dark violet. Length of adult female only 4 mm.

Remarks. — This is the only as yet known species of the genus and was, as above stated, wrongly referred by Boeck to the genus *Orchomene.*

Occurrence. — I have only met with 2 specimens of this diminutive species, both collected in the same locality, viz., at Folgerø, west coast of Norway, in a depth of about 40 fathoms. Boeck collected this form at Haugesund in comparatively shallow water between algæ. Out of Norway it has not yet been recorded.

Gen. 17. **Orchomenopsis,** G. O. Sars, n.

Syn: *Orchomene,* Stebbing (ex parte).

Body more slender than in the 3 preceding genera, with the metasome well developed and the coxal plates successively increasing in size to the 4th pair. Cephalon with the lateral corners obtusely rounded. Last pair of epimeral plates of metasome likewise evenly rounded, posterior edge smooth. Superior antennæ of moderate length, with the accessory appendage well developed. Inferior antennæ considerably longer than the superior. Epistome not at all projecting, anterior lip rounded in front. Mandibles strong, with the molar expansion slightly produced; palp rather large and originating a little nearer the base than does the latter. First pair of maxillæ with the masticatory lobe obliquely truncated and armed with strong denticulated spines partly of lamellar form, basal lobe narrowly produced, with 2 small apical bristles, palp normal. Second pair of maxillæ with both lobes narrowly produced and acuminate at the tip. Maxillipeds about as in *Orchomenella.* Anterior gnathopoda very powerful, subcheliform; posterior ones with the carpus rather expanded, propodos comparatively short and angularly produced at the tip beneath the minute dactylus. Pereiopoda strong, basal joint of the 3 posterior pairs moderately expanded. Last pair of uropoda considerably projecting beyond the preceding pair, rami setous on the inner edge. Telson large, triangular, deeply cleft, the incision very narrow, fissure-like.

Remarks. — This new genus is nearly related to the genus *Orchomene,* though differing materially by the epistome being not at all prominent, by the very powerful structure of the anterior gnathopoda, and by the much fuller development of the last pair of uropoda and of the telson, finally by the unarmed last pair of epimeral plates of the metasome. In the structure of the oral parts it comes somewhat nearer to the genus *Orchomenella.* Besides the northern species described in the sequel, 2 of the Challenger species referred by the Rev. Mr. Stebbing to the genus *Orchomene,* viz., *O. musculosus* and *O. abyssorum*, evidently belong to the present genus and perhaps also his 3rd, species, *O. excavatus.*

28. **Orchomenopsis obtusa,** G. O. Sars, n. sp.

(Pl. 26, fig, 2.)

Body moderately slender with broadly rounded back. Cephalon about as long as the 1st segment of mesosome, lateral corners but slightly projecting and broadly rounded. Anterior coxal plates about twice as deep as the body; 1st pair gradually widening below; 4th pair distinctly emarginated posteriorly and forming below the emargination an obtuse projecting lobe; 5th pair fully as deep as broad. Last pair of epimeral plates of metasome not at all projecting at the infero-lateral corners, the edge forming an even uninterrupted curve. First segment of urosome deeply impressed at the base dorsally and forming below the depression a rounded carina. Eyes rather large, irregularly oval, pigment ligth red. Superior antennæ with the 1st joint of the peduncle very large and thick; flagellum of moderate length, 10-articulate, 1st joint large, about as long as the 5 succeeding joints combined; accessory appendage about half the length of the flagellum and 5-articulate, 1st joint as long as the remainder part of the appendage. Inferior antennæ rather slender, exceeding the superior by about half their length; flagellum composed of about 18 articulations. Anterior gnathopoda very strong, propodos twice the length of the carpus and but very slightly tapering to the transversely truncated extremity, carpus exhibiting below a rounded projecting lobe. Posterior gnathopoda with the carpus rather broad, bulging out inferiorly, propodos about half its length, widening distally, with the upper edge curved, the lower straight. Pereiopoda rather elongated but powerful in structure, basal joint of the 3 posterior pairs much shorter than the remainder part of the leg. Last pair of uropoda with the inner ramus very little shorter than the outer; terminal joint of the latter very small. Telson about twice as long as broad at the base, regularly tapering distally, with 4 or 5 pairs of dorsal denticles near the edges and 2 other pairs inside the others; cleft extending somewhat beyond the middle and not at all widening posteriorly. Colour uniformly whitish. Length of adult female 12 mm.

Remarks. — From the Challenger species described by the Rev. Mr. Stebbing the present form would seem to differ, among other things, by the somewhat less robust structure of the anterior gnathopoda, as also by a different form and armature of the telson.

Occurrence. — I have only met with 2 specimens of this form, both females. They were collected last summer in the Trondhjemsfjord from a dead fish fastened on a fishing line, which was let down in a depth of about 100 fathoms.

Gen. 18. **Tryphosa,** Boeck, 1870.

Body comparatively slender and compressed, with rather deep coxal plates, the 1st pair of which, however, are much smaller than the succeeding ones and tapering distally. Last pair of epimeral plates of metasome smooth, nearly rectangular or very slightly produced at the infero-lateral corners. Superior antennæ comparatively slender, with well developed accessory appendage. Inferior antennæ in female a little longer than the superior, in male scarcely half the length of the body. Epistome forming a rounded lamina projecting in front of the anterior lip. Mandibles of moderate size, molar expansion distinctly developed, palp not very slender and originating at about the same level as the latter, terminal joint oval. First pair of maxillæ with the masticatory lobe obliquely truncated at the tip, terminal spines crowded together, basal lobe small, obtuse at the tip, with 2 plumose apical setæ. Second pair of maxillæ with the lobes not very elongated and obtuse at the end. Maxillipeds of moderate size; masticatory lobe rather large, oblong, projecting beyond the antepenultimate joint of the palp; the latter not very strong. Anterior gnathopoda comparatively slender and feeble in structure, carpus elongated, propodos nearly linear, with a well defined palmar edge. Posterior gnathopoda less slender than usual, propodos more or less dilated and densely hirsute, tip scarcely produced beneath the dactylus. Pereiopoda of moderate size, basal joint of the 3 posterior pairs very large and laminar. Last pair of uropoda but little projecting beyond the preceding pair; rami in female generally simple, not setous, in male provided on the inner, edge with plumous setæ. Telson rather large, oblong oval and deeply cleft; terminal lobes each with a single apical denticle.

Remarks. — In their outer habitus the species of this genus exhibit some resemblance to those of the genus *Orchomenella*, though the body appears, as a rule, somewhat more slender and compressed. In the structure of the oral parts as also of the 2 pairs of gnathopoda there are, however, well marked differences between the 2 genera. Off the coast of Norway occur no less than 4 well distinguished, though very nearly allied species. Another northern form, produced on the Norwegian North Atlantic Expedition, was wrongly referred by the author to *T. Hörringii* Boeck, but constitutes in fact a distinct new species[1], nearly allied to *T. angulata* G. O. Sars, to be described in the sequel. A second deep water species, *T. pusilla,* was described by the author from the same Expedition. Moreover several exotic species have been recorded. Thus Dr Hansen refers, but with some doubt, a very handsome Greenland species, *T. pulchra*, to this genus, and the Rev. Mr. Stebbing describes 2 species from the Challenger Expedition, viz., *T. barbatipes,* and *T. antennipotens,* neither of which, however, in my opinion can properly be referred to the present genus, the first being apparently an *Orchomenella*, whereas the latter undoubtedly belongs to the genus *Pseudotryphosa*, to be described in the sequel.

29. **Tryphosa nana,** (Kröyer).

(Pl. 27, fig. 1.)

Anonyx nanus, Kröyer, Naturh. Tidsskr. 2 R. 2 Bd. p. 30.

Body rather compressed, smooth and polished. Cephalon longer than the 1st segment of mesosome, lateral corners not very projecting and rounded at the tip. Anterior coxal plates more than twice as deep as the body, 1st pair with the anterior edge distinctly concaved, 4th pair obtusely produced posteriorly in their lower part, 5th pair somewhat more broad than deep. Last pair of epimeral plates of metasome rectangular, posterior edge straight. First segment of urosome without any dorsal projection. Eyes of moderate size, oblong oval, pigment light red. Superior antennæ about as long as the cephalon and the 2 first segments of mesosome combined, 1st joint of the peduncle twice as long as the other 2 taken together; flagellum considerably longer than the peduncle, 9-articulate, with the 1st joint comparatively short and scarcely longer than the 2 succeeding ones combined; accessory appendage very narrow, scarcely half as long as the flagellum and composed of 5 articulations, the 1st of which does not exceed the succeeding ones in length. Inferior antennæ in female very little longer than the superior, flagellum 9-articulate; in male about twice the length of the former. Epistomal plate not very projecting, obtusely angular in front. Anterior gnathopoda with the propodos about the length of the carpus, palmar edge nearly transversely truncated. Posterior gnathopoda with the propodos oval, scarcely narrower than the carpus, dactylus rather strong. Basal joints of the 3 posterior pairs of pereiopoda successively increasing in size posteriorly. Last pair of uropoda with the inner ramus scarcely longer than the basal joint of the outer. Telson oblong oval, with 2 pairs of dorsal denticles, cleft extending far beyond the middle. Body whitish, pellucid, with a few light reddish pigmentary spots. Length of adult female scarcely exceeding 4 mm.

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[1] The said species, which will be described and figured in an appendix to the present work and for which I propose the name of *T. compressa,* is chiefly distinguished by the very deep cephalon, the lateral corners of which are considerably projecting though obtuse at the tip, by the very narrow linear form of the eyes, and finally by the considerable size and powerful structure of the propodos of the posterior gnathopoda.

Remarks. — The description of this and the following species given by Boeck in his great work on the northern Amphipoda is in several points incorrect and misleading as regards the specific distinction; on the other hand, he was certainly right in removing both these species from the genus *Anonyx* and in referring them to a particular genus. The present species, which may be regarded the type of this genus, is easily known from the other species here discribed both by its small size and by the absolute want of any dorsal projection on the 1st segment of the urosome.

Occurrence. — Off Norway the species would seem to be restricted to the south and west coasts. At least it has never yet been met with either off the coast of Nordland or that of Finmark. It occurs, as a rule, in comparatively shallow water, from 6 to 20 fathoms, especially where the bottom is sandy.

Distribution. — Denmark, Bohuslän, Shetland isles (Norman), coast of France (Chevreux), Adriatic (Heller). —

30. **Tryphosa Hörringii**, Boeck.

(Pl. 27, fig. 2.)

Tryphosa Höringii, Boeck, Chrust. amphip. bor. & arct. p. 38.

Body less compressed than in the preceding species, the back being broadly rounded. Cephalon about the length of the 1st segment of mesosome, lateral corners rather projecting and obtusely rounded at the tip. Coxal plates rather large, 1st pair less concaved anteriorly, 4th pair angularly produced posteriorly in their lower part, 5th pair fully as deep as broad. Last pair of epimeral plates of metasome rectangular, posterior edge slightly arched. First segment of urosome deeply impressed at the base dorsally and having besides a very conspicuous compressed hump-like projection angularly produced at the tip. Eyes much larger than in the preceding species, oblong oval, somewhat widening below, pigment light red. Superior antennæ with the peduncle comparatively thicker than in *T. nana*; flagellum rather slender, about twice the length of the peduncle, 11-articulate, 1st joint larger than in the latter species; accessory appendage half the length of the flagellum, 6-articulate, 1st joint the largest. Inferior antennæ in female scarcely longer than the superior, flagellum 13-articulate. Epistome considerably more projecting than in *T. nana* and rounded in front. Anterior gnathopoda more slender than in the latter species, propodos shorter than the carpus and nearly transversely truncated at the tip, with 2 very conspicuous spines on the inferior corner. Posterior gnathopoda likewise rather slender, propodos oblong oval and scarcely as broad as the carpus. Pereiopoda comparatively stronger than in *T. nana*, basal joint of the last pair very large, rounded quadrangular. Last pair of uropoda nearly as in the latter species, though the inner ramus appears a little larger. Telson oblong oval, slightly tapering distally, with 3 pairs of dorsal denticles, cleft very deep, almost extending to the base. Colour pale reddish or carneous. Length of adult female 7 mm., of male 6 mm.

Remarks. — The present species is nearly allied to the preceding one, from which, however, it is readily distinguishable by the very conspicuous triangular projection of the 1st segment of the urosome, as also by the larger size of the eyes.

Occurrence. — Unlike the preceding form this species is a true deep water form, occurring only in greater depths from 50 to 150 fathoms, especially in the region of the deep sea corals. I have collected it in several partes of the west coast of Norway up to Lofoten, as also in the Trondhjemsfjord.

Distribution. — East coast of North America, Labrador (Packard); Denmark (Meinert);Bohuslän (Gunhild's Expedition).

31. **Tryphosa angulata,** G. O. Sars, n. sp.

(Pl. 28, fig. 1.)

Body somewhat shorter and stouter than in the 2 preceding species. Cephalon rather deep, lateral corners distinctly angular and drawn out at the tip to a short anterior directed tooth-like projection. Anterior coxal plates scarcely twice as deep as the body; 1st pair distinctly concaved anteriorly, 4th pair angularly produced below the emargination, 5th pair about as deep as broad. Last pair of epimeral plates of metasome rectangular, posterior edge straight. First segment of urosome exhibiting, as in *T. Hörringii*, a rather high and compressed dorsal projection, the tip of which, however, is distinctly biangular. Eyes very large, nearly occupying the entire height of the cephalon, narrow oblong in form, pigment light red. Superior antennæ very slender, with the peduncle narrower than usual; flagellum nearly twice its length' setous on the lower edge and 14-articulate, 1st joint scarcely as long as the 3 succeeding ones combined; accessory appendage about equalling $^1/_3$ of the length of the flagellum and composed of 5 articulations, the first of which hardly exceeds in length the 2nd. Inferior antennæ in female a little longer than the superior, flagellum 15-articulate. Epistomal plate considerably projecting and quite evenly rounded in front. Anterior gnathopoda of the usual slender form, propodos scarcely as long as the carpus, palmar edge oblique, dactylus with a conspicuous secondary denticle. Posterior gnathopoda with the propodos about as broad as the carpus. Pereiopoda rather slender, basal joint of last pair large, oval in form. Last pair of uropoda with the inner ramus scarcely longer than the basal joint of the outer and provided on the inner edge with a single denticle. Telson oblong oval, gradually tapering distally, with 3 or 4 pairs of dorsal denticles, cleft very narrow, fissure-like, and extending considerably beyond the middle. Colour pale reddish. Length of adult female 7 mm.

Remarks. Though in some points closely agreeing with *T. Hörringii*, this pretty species is at once distinguished both from that species and from *T. nana* by the peculiar angulated form of the lateral corners of the cephalon, as also by several other characters named in the above diagnosis.

Occurrence. — The range of this species would seem to be more northern than that of the 2 preceding ones. I have found it rather sparingly in a few places off the coast of Nordland and Finmark and quite recently more plentifully in the Trondhjemsfjord. It is a true deep water species, only occurring in depths varying from 100 to 150 fathoms.

32. **Tryphosa nanoides,** (Lilljeborg).

(Pl. 28, fig 2.)

Anonyx nanoides, Lilljeborg, On the Lysianassa magellanica etc., p. 25, Pl. III, fig. 32—34.

Body rather slender and highly compressed. Cephalon scarcely longer than the 1st segment of mesosome, lateral corners but slightly projecting and rounded at the tip. Anterior coxal plates fully twice as deep as the body; 1st pair with the anterior edge straight, 4th pair considerably expanded below and angularly produced posteriorly, 5th pair a little more broad than deep, with the posterior edge obtusely angulated on the middle. Last pair of epimeral plates of metasome produced at the infero-lateral corners to a short and blunt point, posterior edge arched. First segment of urosome deeply impressed dorsally and exhibiting below the depression a rounded carina advancing over the succeeding segment. Eyes rather large, oval or reniform, pigment pale red. Superior antennæ with the peduncle rather thick and massive; flagellum scarcely twice as long and 11-articulate, 1st joint very large, about the length of the 5 succeeding joints combined; accessory appendage exceeding half the length of the flagellum, 10-articulate, 1st joint considerably larger than any of the others. Inferior antennæ in female somewhat longer than the superior, flagellum composed of about 22 articulations. Epistome forming a narrow rounded lobe overhanging the anterior lip in front. Anterior gnathopoda of the usual structure, propodos shorter than the carpus and transversely truncated at the tip, inferior corner rectangular. Posterior gnathopoda very slender, propodos oblong oval, about half the length of the carpus and scarcely as broad. Pereiopoda slender, basal joint of the 3 posterior pairs very large. Last pair of uropoda larger than usual, inner ramus scarcely longer than the basal joint of the outer, both provided on the inner edge near the tip with a few small setæ. Telson oblong oval, very slightly tapering distally, with 3 or 4 pairs of dorsal denticles, cleft very deep and narrow. Body whitish pellucid, with a few scattered patches of a diffuse orange-coloured pigment. Length of adult female 8 mm.

Remarks. — The present species, discovered by Prof. Lilljeborg, is easily distinguishable from any of the preceding ones by the slender compressed body, the form of the last pair of epimeral plates of metasome and by the rounded dorsal carina of the 1st segment of the urosome. Moreover there are in the anatomical details several well marked characters to distinguish this species from the other northern forms of the genus.

Occurrence. — I have met with this species in several places off the west coast of Norway, as also in Lofoten and off the Finmark coast, in depths varying from 50 to 100 fathoms. Quite recently I collected a great number of specimens in the Trondhjemsfjord from the back of a living skate (Raja batis) just brought up by a fishing line from a depth of about 80 fathoms.

Distribution. — Coast of Bohuslän (Bruzelius); Denmark (Meinert); Shetland isles (Norman); Greenland (Hansen); off Jan Mayen (Norw. North-Atlantic Expedition).

Gen. 19. **Tryphosites,** G. O. Sars, n.

Syn: *Typhosa.* Boeck, (ex parte).

Body slender, with large coxal plates, the 1st pair of which does not differ in form from the succeeding ones. Last pair of epimeral plates of metasome produced at the infero lateral-corners to a triangular upturned lobe. Superior antennæ slender, with the accessory appendage comparatively small. Inferior antennæ in female scarcely longer than the superior. Both pairs of antennæ, but especially the 2nd, greatly elongated in male. Epistome produced in the form of a lanceolate anteriorly pointing spine. Mandibles of moderate size, molar expansion large and well developed, palp slender, originating a little nearer the base than does the latter, terminal joint very narrow. Maxillæ about as in *Tryphosa.* Maxillipeds with the masticatory lobe very large, oblong oval, slightly denticulated on the tip and inner edge; palp reaching but little beyond the latter, dactylus elongated, claw-like. Anterior gnathopoda of a similar slender form as in *Tryphosa.* Posterior gnathopoda rather elongated; carpus very narrow, linear; propodos large, oblong, dilated at the middle, tip not produced beneath the minute dactylus. Pereiopoda unusually slender and elongated, especially those of the posterior pairs, the basal joint of which is greatly expanded. Last pair of uropoda rather large, considerably projecting beyond the preceding pair, rami denticulated and setous in both sexes. Telson deeply cleft, each of the terminal lobes armed at the tip with 3 denticles.

Remarks. — The type of this genus is *Anonyx longipes* Sp. Bate, which was referred by Boeck to his genus *Tryphosa*, though he remarks that it differs markedly from the other species in the form of the epistome, so as perhaps more properly to be generically separated. Such a separation I think is in fact fully justified, since this form also differs from the species of *Tryphosa* in several other characters of apparently generical value.

33. **Tryphosites longipes,** (Sp. Bate).

(Pl. 28, fig. 3, Pl. 29 fig. 1.)

Anonyx longipes, Sp. Bate. Catalogue of the Amphipoda in the British Museum, p. 79, pl. XIII, fig

Syn: *Anonyx ampulla*, Sp. Bate (not Phipps) ♂.

Body rather compressed and of slender and elegant form. Cephalon less deep than usual, lateral corners somewhat produced and acute at the tip. Anterior coxal plates more than twice as deep as the body; 1st pair slightly concaved at the anterior edge; 4th pair considerably expanded below and angularly produced posteriorly; 5th pair not very large, much more broad than deep. Last pair of epimeral plates of metasome with the posterior lobe sharply pointed. First segment of urosome without any dorsal projection. Eyes of moderate size, oval, pigment light red. Superior antennæ in female about the length of the cephalon and the 3 first segments of mesosome combined; peduncle not very tumeficated; flagellum more than twice its length and composed of about 18 articulations, the 1st of which is very large; accessory appendage scarcely $^1/_4$ as long as the flagellum and 5-articulate. Same antennæ in male nearly twice as long, flagellum very slender and composed of about 30 articulations. Inferior antennæ in female scarcely as long as the superior, flagellum 15-articulate; in male very elongated, exceeding the length of the whole body, peduncular joints rather dilated, flagellum extremely slender, filiform. Epistomal spine considerably projecting beyond the edge of the anterior coxal plates. Anterior gnathopoda slender and feeble in structure, propodos much shorter than the carpus and nearly of uniform breadth throughout, palmar edge somewhat oblique. Posterior gnathopoda with the propodos a little shorter than the carpus, oblong oval, or nearly fusiform, superior edge straight, inferior one bulging out at the middle. Anterior pereiopoda densely setous on the posterior edge; the 3 posterior pairs, but especially the 2 last ones, extremely slender and elongate, with the propodal joint very narrow, and the dactylus straight and setiform. Last pair of uropoda with the inner ramus longer than the basal joint of the outer, terminal joint of the latter spiniform; penultimate pair with the inner ramus deeply incised near the tip and bearing immediately above the incision a slender spine. Telson oblong, only slightly tapering distally, with 3 pairs of dorsal denticles, the middle one rather elongated, cleft extending far beyond the middle and gradually widening posteriorly, apical denticles of each terminal lobe diminishing in length inwards. Body whitish pellucid, with reddish brown intestine; ova in the marsupial pouch orange-coloured. Length of adult female 12 mm; of male about the same.

Remarks. — This is the only as yet known species of the genus; for none of the earlier described forms of Lysianassidæ can properly be referred to it, at least so far as our present knowledge of them goes.

Occurrence. — Off the coast of Norway this is one of the commonest Lysianassidæ, often occurring in considerable numbers at depths varying from 20 to 100 fathoms. I have met with it in numerous places both on the south and west coast, as also along the whole coasts of Nordland and Finmark up to the Varangerfjord.

Distribution. — Denmark, British Isles, west coast of France (Chevreux); Mediterranem (found bytte author at Naples).

Gen. 20. **Pseudotryphosa,** G. O. Sars, n.

Syn: *Tryphosa*, Stebbing (ex parte).

Body rather thickish, with the anterior coxal plates comparatively small and densely crowded together. Metasome powerfully developed, with large epimeral plates. Eyes imperfectly developed. Antennæ rather elongated but powerful in structure, inferior ones somewhat longer than the superior, flagella provided in both sexes with wery distinct alternating calceolæ. Epistome not projecting in front of the broadly rounded anterior lip. Posterior lip membranous, with narrowly produced diverging lateral corners. Mandibles rather strong, molar expansion well developed, palp moderately slender and originating at about the same level as the latter. Maxillæ about as in *Tryphosa.* Maxillipeds with the masticatory lobe short and broad, scarcely reaching the end of the antepenultimate joint of the palp; the latter rather robust, with the terminal joint claw-like. Anterior gnathopoda much stronger than in the 2 preceding genera; propodos rather large, imperfectly subcheliform, the palmar edge being not distinctly defined; dactylus very elongated and curved. Posterior gnathopoda slender, propodos gradually widening distally and not produced at the tip beneath the minute dactylus. Pereiopoda powerfully developed, basal joint of the 3 posterior pairs large and laminar, successively increasing in size posteriorly. Last pair of uropoda considerably projecting beyond the preceding pair, both rami lanceolate and setous on the inner edge. Telson large, gradually tapering distally and deeply cleft.

Remarks. — I have felt justified in establishing this new genus to include the remarkable form previously characterized by me under the name of *Ichnopus umbonatus.* The closer anatomical examination of this form, instituted subsequently, has indeed shown it to be very different from *Ichnopus* and not to be properly referred to any of the previously established genera. Besides this species, the form described by the Rev. Mr. Stebbing from the Challenger Expedition as *Tryphosa antennipotens* quite undoubtedly belongs to the same genus.

34. **Pseudotryphosa umbonata.** G. O. Sars.

(Pl. 29, fig. 2.)

Ichnopus umbonatus, G. O. Sars, Oversigt af Norges Crustaceer I, p. 79, Pl. 3. fig. 2.

Body somewhat tumid, with the back broadly rounded. Cephalon about the length of the 1st segment of mesosome, lateral corners drawn out to an acute point. First pair of coxal plates very small, scarcely deeper than the corresponding segment, and tapering inferiorly; the 3 succeeding pairs somewhat deeper than the body; 4th pair deeply emarginated posteriorly and produced below the emargination to a sharp corner; 5th pair rather large, much more broad than deep, and exhibiting on the middle a very conspicuous transversal umboniform eminence. Last pair of epimeral plates of metasome not produced at the infero-lateral corners and nearly rectangular. First segment of urosome without any dorsal projection, but slightly impressed at the base. Eyes inconspicuous in spirit-specimens. Superior antennæ about the length of the 5 anterior segments of mesosome combined; 1st joint of the peduncle elongated, more than twice as long as the other 2 combined and of uniform breadth throughout; flagellum of rather coarse structure, about twice the length of the peduncle and composed af about 25 joints, the 1st of which is by far the largest; accessory appendage scarcely $1/3$ as long as the flagellum, very narrow, almost setiform, and composed of 6 articulations subequal in size. Inferior antennæ a little longer than the superior, last joint of the peduncle longer than the preceding one, flagellum more slender than that of the superior and composed of about 23 articulations. Anterior gnathopoda with the propodos about twice as long as the carpus, oblong oval, palmar edge very oblique and scarcely defined below, dactylus about half the length of the propodos. Posterior gnathopoda with the propodos a little broader than the carpus and about half its length. Basal joint of the last pair of pereiopoda broadly oval, more than twice as large as that of the antepenultimate pair. Last pair of uropoda with the inner ramus a little shorter than the outer, terminal joint of the latter rather small. Telson fully twice as long as broad at the base, gradually tapering, with 2 pairs of dorsal denticles, cleft extending far beyond the middle, very narrow, fissure-like. Colour whitish. Length of the only specimen procured 11 mm.

Remarks. — I have been in some doubt about the sex of the specimen examined and, having not found any distinct incubatory lamellæ, have signed it on the plate as a male, thus believing the calceolæ of the antennæ to be a peculiar masculine character. The Rev. Mr. Stebbing has, however, on the plate representing his species *Tryphosa antennipotens* determined the specimen as a female, though it has the antennæ provided with calceolæ in exactly the same manner as the Norwegian specimen. It would thus appear that in this genus, as is the case with *Ichnopus*, both sexes are provided with those peculiar appendages. From the Challenger species the present form is easily recognized, not only by the peculiar umboniform eminence of the 5th pair of coxal plates, but also by the absolute want of any dorsal projection of the 1st segment of the urosome.

Occurrence. — The above described specimen was collected many years ago at Hvitingsö, west coast of Norway, from a depth of about 150 fathoms.

Distribution. — Skagerak (Gunhilds Expedition), 1 specimen collected at a depth of 400 to 420 fathoms.

Gen. 21. **Euryporeia,** G. O. Sars.

Syn: *Eurytenes,* Lilljeborg (not. Förster).

Body large and massive, with comparatively low coxal plates. Cephalon short and broad, only very little produced at the lateral corners and nearly entirely exposed together with the large and protruding buccal mass. Metasome and urosome both powerfully developed. Eyes with imperfectly developed visual elements. Superior antennæ of moderate length, peduncle not very tumeficated, flagellum composed of numerous short articulations; accessory appendage well developed. Inferior antennæ in female much longer than the superior, basal joint very large and globular, flagellum slender and multiarticulate. Epistome not defined from the anterior lip, both together forming a broadly rounded prominence in front of the buccal area. Posterior lip large, membranous, lobes insinuated at the tip. Mandibles very strong, cutting edge broad and straight, molar expansion large and protruding, palp not very elongate, originating nearer the extremity of the mandible than does the latter. First pair of maxillæ with the masticatory lobe large and massive, obliquely truncated and armed with strong denticulated spines, basal lobe small, with numerous plumose setæ on the rounded extremity, palp very narrow, not expanded at the tip. Second pair of maxillæ with the inner lobe much shorter than the outer, both densely setous. Maxillipeds strong, masticatory lobe broadly oval not reaching beyond the antepenultimate joint of the palp, the latter very large, with the joints considerably expanded and densely setous, terminal joint claw-like. Anterior gnathopoda short and stout, propodos tapering distally and having a distinctly defined palmar edge. Posterior gnathopoda extremely slender, propodos nearly linear and but little produced at the tip beneath the minute dactylus. Pereiopoda comparatively short and stout, basal joint of the 3 posterior pairs moderately expanded, meral joint of those legs rather large and angularly produced posteriorly. Last pair of uropoda considerably projecting beyond the preceding pairs, rami foliaceous and densely setous on the inner edge. Telson very elongate, conically tapering distally, and deeply cleft.

Remarks. — In 1865 Prof. Lilljeborg established this genus to include the remarkable gigantic form described by Milne Edwards under the name of *Lysianassa magellanica.* The denomination *Eurytenes* proposed by him having, however, been before adopted for a genus of Hymenoptera, I have changed the latter half of the compound, still conserving the signification of the name as intended by Prof. Lilljeborg. The genus would seem to combine some characters of the genera *Anonyx* and *Onesimus,* still exhibiting a number of characters of its own.

35. **Euryporeia gryllus,** (Mandt).

(Pl. 39.)

Lysianassa gryllus, Mandt, Observationes in historiam naturalem in itinere Groenlandico factæ 1822. p. 34.

Syn: Lysianassa magellanica, M. Edw.

Body rather thickset and strongly built, with broadly rounded back and the segments very sharply demarcated. Cephalon shorter than the 1st segment of mesosome, rather tumid, nearly globular, lateral corners very small and narrowly rounded. First pair of coxal plates extremely small, rounded, leaving the lateral faces of the cephalon uncovered; the 3 succeeding pairs successively increasing in size; 4th pair a little deeper than the body, rather expanded below and angularly produced posteriorly; 5th pair nearly twice as broad as deep. Last segment of metasome provided with a very conspicuous dorsal indentation at some distance from the base, epimeral plates rounded at the infero-lateral corners. First segment of urosome with a similar dorsal indentation as in the preceding segment. Eyes irregularly lageniform, being constricted at the middle and having the inferior part expanded to two diverging lobes; pigment light orange-coloured. Superior antennæ about twice the length of the cephalon, 1st joint of the peduncle somewhat longer than the other 2 combined; flagellum nearly three times as long as the peduncle and composed of about 30 articulations, the 1st of which is very large; accessory appendage about half the length of the flagellum and 10-articulate, 1st joint the largest. Inferior antennæ nearly twice the length of the superior, last joint of the peduncle longer than the preceding one; flagellum very slender, densely setous on the posterior edge and composed of about 50 articulations. Anterior gnathopoda with the propodos longer than the carpus, palmar edge somewhat oblique and defined below by a well marked angle. Posterior gnathopoda fully twice the length of the anterior; propodos somewhat shorter and much narrower than the carpus, both densely setous. Pereiopoda with numerous tufts of small setæ on the edges; basal joint of 3rd pair very broad, nearly elliptical in form, that of the 2 posterior pairs more regularly oval; meral joint in both these and the 3rd pair very large and expanded, terminating posteriorly with a pointed deflexed lobe. Last pair of uropoda with the inner ramus somewhat shorter than the outer, terminal joint of the latter very small, aculeiform. Telson nearly extending to the tip of the last pair of uropoda, conico-acuminate in form, and without any denticles, cleft extending far beyond the middle, very narrow, fissure-like. Colour[1] rosy with a yellowish tinge, edges of the legs beautifully vermilion-coloured. Length of an adult female specimen 62 mm.

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[1] According to the statements of Dr. E. Chevreux.

Remarks. — There cannot now, I think, be any doubt that this form is in reality identical with the *Lysianassa magellanica* of Milne Edwards, although the occurrence of one and the same species both in the Arctic and Antarctic seas would seem to be highly perplexing. The recent discovery of this species, during the American Expedition of «Albatross» and the French Expedition of «Hirondelle», in the great deeps of the Atlantic at intermediate latitudes would seem still more to confirm the correctness of the above identification.

Occurrence. — All the specimens preserved in our Museum have been extracted from the stomach of large sharks (Scymnus borealis), and as some of these sharks notoriously were captured off the coast of Finmark, the species may properly be referred to the Norwegian fauna, though it probably lives outside the great fishing banks. Through the kindness of Mr. Schneider, curator of the Tromsö Museum, I have had an opportunity of examining 2 specimens procured by him, both of which were in an excellent state of preservation, even still exhibiting the ocular pigment nearly unaltered. From one of these specimens the habitus figure here given has been drawn, and from the other the anatomical details.

Distribution. — Antarctic Ocean off Cape Horn, «from the belly of a large fish»; Arctic Ocean: Greenland, Spitsbergen, from the stomach of sharks; Atlantic, off the east coast of North America (Smith), and off the Azores (Chevreux), collected from very great deeps.

Gen. 22. **Anonyx,** Kröyer.

Body moderately slender, with the coxal plates of middle size, 1st pair well developed and widening below. Last pair of epimeral plates of metasome produced at the infero-lateral corners to a triangular upturned lobe. Superior antennæ with the peduncle considerably tumeficated, flagellum more or less slender, accessory appendage well developed. Inferior antennæ, as a rule, somewhat longer than the superior, in male about twice as long as in female. Flagella of both pairs of antennæ in male provided with very large and conspicuous calceolæ. Epistome not at all projecting. Anterior lip produced in front to a compressed linguiform lobe, posterior lip rather large, membranous. Mandibles very powerful, cutting edge provided at the inner corner with one or two secondary teeth, molar expansion rather prominent, with the tip conically produced and densely ciliated; palp shorter than the mandible and originating much nearer its extremity than does the latter. First pair of maxillæ with the masticatory lobe rather large, obliquely truncated and armed with strong denticulated spines; basal lobe small, bisetose; palp large, spathulate, and armed on the terminal edge with short aculei. Second pair of maxillæ with the inner lobe much smaller than the outer. Maxillipeds large, masticatory lobe broadly oval, not reaching to the end of the antepenultimate joint of the palp; the latter robust, with the terminal joint claw-shaped. Anterior gnathopoda short and stout, distinctly subcheliform, the propodos being nearly transversely truncated at the tip, dactylus short and simple. Posterior gnathopoda moderately slender, propodos oval, slightly produced at the tip beneath the minute dactylus. Pereiopoda rather elongate, basal joint of the 3 posterior pairs successively increasing in size. Branchial lamellæ large and distinctly plicated transversally on both sides. Last pair of uropoda considerably projecting beyond the preceding pair, rami lanceolate, denticulated and setous on the edges. Telson of moderate size, deeply cleft.

Remarks. — In the restricted sense in which the genus is here taken, it only comprises one of the Kröyerian species, viz., his *Anonyx lagena.* Another nearly related species discovered by Boeck, *A. Lilljeborgii,* will be described together with the type species in the sequel. Besides, 3 other forms may without any doubt be adduced to the same genus, viz., *A. ampulloides* Sp. Bate, *A. Zschauii* Pfeffer, and *Lysianassa Martensi* Goës. Probably also several other exotic forms may on closer examination be found to belong to the present genus.

36. **Anonyx nugax,** (Phipps).

(Pl. 31.)

Cancer nugax, Phipps, Voyage au Pôle boréale, p. 192, Pl. 12, fig. 3.

Syn: *Anonyx ampulla,* Kröyer (not Phipps).
» *Anonyx lagena,* Kröyer.
» *Anonyx appendiculosus,* Kröyer (male).

Body not very high in proportion to its length, back evenly vaulted. Cephalon about the length of the 1st segment of mesosome, lateral corners but slightly produced and rounded at the tip. Anterior coxal plates not twice as deep as the body, in male considerably narrower than in female; 1st pair rather expanded below, 4th pair deeply emarginated posteriorly and forming below the emargination a sharp corner, 5th pair comparatively small and more broad than deep. Last pair of epimeral plates of metasome with the terminal lobe sharply pointed. First segment of urosome scarcely impressed dorsally. Eyes lageniform, distinctly constricted at the middle and considerably dilated below, in male much larger than in female; pigment in both sexes very dark, black. Superior antennæ in female about the length of the cephalon and the 2 first segments of mesosome combined, 1st joint of the peduncle very large; flagellum somewhat longer than the peduncle and composed of about 15 joints, the 1st of which is about as long as the 5 succeeding ones combined; accessory appendage more than half the length of the flagellum and 8-articulate, 1st joint the largest. Inferior antennæ considerably longer than the superior, antepenultimate joint of the peduncle rather thick and scarcely shorter than the penultimate; flagellum slender and composed of about 23 articulations. Anterior gnathopoda strong, propodos longer than the carpus[1] and nearly of uniform breadth throughout, palmar edge transversal and defined below by a rightangled corner. Posterior gnathopoda with the propodos about half the length of the carpus and oval in form. The 2 posterior pairs of pereiopoda nearly equal in length and considerably longer than the 3rd pair. Last pair of uropoda with the inner ramus somewhat longer than the basal joint of the outer; both rami in male larger than in female. Telson oblong quadrangular, only slightly tapering distally, with 2 pairs of dorsal denticles; cleft extending beyond the middle, and somewhat widening below; terminal lobes obtuse at the tip, forming exteriorly a projecting angle inside which occurs a small denticle. Colour (in Norwegian specimens) whitish, each segment exhibiting dorsally a transversal yellowish band. Usual length of adult female 18 mm.; maximum length of arctic specimens 40 mm.

Remarks. — There cannot, I think, be any doubt that the *Cancer nugax* of Phipps is the present species, and as that name is much elder than any of the specific appellations proposed by Kröyer, it ought certainly to be retained for the species under consideration. Arctic specimens would seem to differ from those met with off the Norwegian coast, not only by their much larger size and by the above mentioned somewhat different proportion between the carpus and propodos of the anterior gnathopoda, but also by the colour, which, according to a coloured drawing made during the Norwegian North Atlantic Expedition, is a light claret-red.

Occurrence. — The species would seem to occur along the whole coast of Norway in depths varying from 20 to 300 fathoms, but is by far most frequently met with in the arctic region, off the coast of Nordland and Finmark, where it also reaches a much larger size than farther south.

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[1] In arctic specimens the carpus appears generally larger, being often as long as the propodos and much broader.

Distribution. — Arctic Ocean, widely distributed: Greenland, Spitsbergen, Iceland, Jan Mayen, Arctic America, Frantz Josephs Land, the Barents Sea, the Murman coast, the Kara Sea, the Siberian Polar Sea, the Behring strait; the Norwegian North Atlantic Expedition, in numerous places, down to 658 fathoms; Bohuslän (Bruzelius); Shetland Isles (Norman).

37. **Anonyx Lilljeborgii,** Boeck.

(Pl. 32, fig. 1.)

Anonyx Lilljeborgii, Boeck, Crust. amphip. bor. & arct. p. 29.

In general appearence very like the preceding species, but somewhat more slender and with the coxal plates comparatively smaller. Cephalon with the lateral corners a little more produced and narrowly rounded at the tip. First pair of coxal plates less dilated in their inferior part, 4th pair but little deeper than the body. Last pair of epimeral plates of metasome with the terminal lobe comparatively smaller than in the preceding species and less acute. First segment of urosome deeply impressed dorsally. Eyes rather large, oblong reniform, gradually somewhat dilated below, pigment brownish red. Superior antennæ comparatively shorter than in the preceding species, peduncle less tumeficated; flagellum 14-articulate, 1st joint about the length of the 3 succeeding ones combined; accessory appendage about half the length of the flagellum and 6-articulate. Inferior antennæ but very little longer than the superior, flagellum composed of about 15 articulations. Anterior gnathopoda less robust than in the type species, propodos about the length of the carpus and gradually tapering to the transversely truncated extremity. Posterior gnathopoda very slender, propodos narrower than in the said species and more distinctly produced at the tip beneath the dactylus. The 2 anterior pairs of pereiopoda with a very conspicuous obtuse denticle at the end of the propodos immediately below the dactylus, the 3 posterior pairs comparatively less elongated. Last pair of uropoda with the rami considerably narrower than in the preceding species and having a less number of marginal denticles. Telson a little longer in proportion to its breadth, otherwise very like that in the preceding species. Length of adult female 11 mm.

Remarks. — This species is very nearly allied to *A. nugax,* though differing somewhat in several of the structural details. I have not myself met with it, but have had an opportunity to examine a rather well preserved specimen in our University Museum and another from the Museum in Bergen, both of which closely agreed with each other. Moreover the dissections made by Boeck of his type specimen have been preserved in our collection, and from these the detail-figures here given were drawn.

Occurrence. — According to Boeck, this species has been found by him off the west coast of Norway, at Hvitingsö and Skudesnæs in a depth of 60—70 fathoms. His statements of its occurrence at Utne in Hardangerfjord and Brettesnæs in Lofoten seem, on the other hand, to have been based on a wrong determination. The above mentioned specimen in the Bergen Museum was collected by Dr. Danielssen at Molde. Out of Norway it has not yet been recorded.

Gen. 24. **Hoplonyx,** G. O. Sars, n.

Syn: *Anonyx,* Kröyer (ex parte).

Body moderately slender, with the coxal plates comparatively larger than in *Anonyx.* Last pair of epimeral plates of metasome with the infero-lateral corners more or less produced. Eyes, when present, subsigmoid in form, their upper part being, as a rule, very narrow, whereas the lower part is considerably dilated posteriorly. Superior antennæ about as in *Anonyx*; inferior ones, as a rule, considerably longer than the superior; calceolæ in male not nearly so large and conspicuous as in *Anonyx.* Epistome more or less projecting and rounded in front. Mandibles without any secondary teeth on the cutting edge, molar expansion large and obliquely truncated; palp rather slender, originating nearly at the same level as the latter. First pair of maxillæ about as in *Anonyx,* 2nd pair with the lobes somewhat more elongated. Maxillipeds with the masticatory lobe rather large, oblong oval and reaching to the end of the antepenultimate joint of the palp; the latter comparatively less robust than in *Anonyx.* Anterior gnathopoda very slender, with the ischial joint unusually elongated, propodos oblong oval, with the palmar edge very oblique and not distinctly defined below, dactylus rather elongated, minutely denticulated inside and having beyond the middle a very distinct secondary tooth and a few setæ, apex composed of 2 juxtaposed pointed lamellæ. Posterior gnathopoda of the usual slender form, propodos not at all produced at the tip beneath the minute dactylus. Pereiopoda about as in *Anonyx;* branchial lamellæ, however, simple, not plicated. Last pair of uropoda considerably projecting beyond the preceding pair, rami minutely denticulated and, as a rule, densely setous on the inner edge. Telson oblong, deeply cleft.

Remarks. —I have felt justified in establishing this new genus to include several nearly allied forms which, though evidently specifically distinct, yet agree in all essential anatomical characters very closely with the species generally known under the Kröyerian name *Anonyx gulosus*. On comparing the anatomy of this latter form with that of *Anonyx nugax*, the type of the genus *Anonyx* as restricted by Boeck, several very marked differences apparently of generic value will be found to exist. Thus, the epistome is distinctly projecting, though rounded in front, and the mandibles rather differently constructed, which is also partly the case with the 2nd pair of maxillæ and the maxillipeds. The most striking difference, however, consists in the structure of the anterior gnathopoda, which are much more slender than in *Anonyx* and exhibit a rather different proportion of the several joints. Moreover the dactylus of these limbs exhibits a very peculiar and complicated structure, which has given rise to the generic denomination here proposed. In all those points there is a perfect concordance between the different species of the present genus. Their number would seem to be rather large. In the following pages will be described no less than 6 Norwegian species, to which, moreover, comes the *Anonyx cicadoides*, described by the Rev. Mr. Stebbing from the Challenger Expedition.

38. **Hoplonyx cicada,** (Fabr.)

(Pl. 32, fig. 2.)

Oniscus cicada, O. Fabr., Fauna Groenlandica. No. 233.
Syn: *Anonyx gulosus*, Kröyer.
» » *norvegicus*, Lilljeborg.
» » *Holbölli*, Sp. Bate (not Kröyer).

Body somewhat tumid, with broadly rounded back. Cephalon longer than the 1st segment of mesosome, lateral corners but very slightly projecting and rounded at the tip. Anterior coxal plates more than twice as deep as the body and increasing successively in size posteriorly; 4th pair produced below the posterior emargination to a rather narrow lobe, obtuse at the tip; 5th pair rather large, nearly as deep as broad. Last pair of epimeral plates of metasome nearly rectangular, infero-lateral corners drawn out to a very short point. First segment of urosome without any distinct dorsal depression. Eyes not very large, superior part narrow linear, inferior transversely oval, pigment bright red. Superior antennæ about the length of the cephalon and the 2 first segments of mesosome combined, peduncle rather thick, with the 1st joint more than twice the length of the other 2 combined; flagellum not quite twice the length of the peduncle, 16-articulate, 1st joint comparatively short, scarcely as long at the 3 succeeding ones combined; accessory appendage not quite half as long as the flagellum and 7-articulate. Inferior antennæ in female half as long again as the superior, flagellum composed of about 28 articulations. Epistome but slightly projecting in front of the anterior lip. Anterior gnathopoda with the propodos as long as the carpus, palmar edge somewhat arcuate and finely serrated but not defined below by any trace of angle. Posterior gnathopoda with the propodos half as long as the carpus. The 2 posterior pairs of pereiopoda rather elongated, with the basal joint of moderate size. Last pair of uropoda with the inner ramus scarcely longer than the basal joint of the outer. Telson not fully twice as long as broad, slightly tapering distally, with 2 pairs of dorsal denticles, cleft very narrow, extending almost to the base. Body cream-coloured with a faint rosy tinge, dorsal part of body-segments bright apple-red; ova in the marsupial pouch dark violet. Length of adult female 18 mm.

Remarks. — I think the Rev. Mr. Stebbing is quite right in restoring the specific name at first given to this form by O. Fabricius. The identity of the *Oniscus cicada* of that author with *Anonyx gulosus* (Kröyer) seems in fact to be beyond any doubt, and Kröyer himself has also suggested the same. It is the type of the present genus.

Occurrence. — This is by far the commonest of all the Norwegian Lysianassidæ, occurring very frequently along the whole coast, from Christiania to Vadsö, in depths varying from 20 to 200 fathoms. I have taken this form in quite extraordinary numbers in small crab-pots baited with dead fish, and also on the body itself of dead fishes fastened on the fishing lines it may often be found clinging in innumerable swarms.

Distribution. — Arctic Ocean, widely distributed: Greenland, Spitsbergen, Iceland, Matotschkin Skar, the Kara Sea; Norwegian North-Atlantic Expedition in several places, down to a depth of 649 fathoms; British Isles, Bohuslän.

39. **Hoplonyx similis,** G. O. Sars, n. sp.

(Pl. 33, fig. 1).

Very like the preceding species, but the body somewhat less robust and more compressed. Cephalon about the length of the 1st segment of mesosome, lateral corners distinctly angular at the tip. Anterior coxal plates about twice as deep as the body; 1st pair tapering inferiorly, tip narrowly rounded; 4th pair with the posterior expansion shorter and broader than in *H. cicada* and obliquely truncated at the tip; 5th pair rounded, quadrangular and about as deep as broad. Last pair of epimeral plates of metasome produced at the lateral corners to a sharp acuminated projection, posterior edge slightly flexuous. First segment of urosome distinctly depressed at the base dorsally. Eyes pronounced sigmoid in form, upper part very narrow, lower rather expanded and forming nearly a right angle with the former, pigment bright red. Superior antennæ in female rather slender, about the length of the cephalon and the 3 first segments of mesosome combined; flagellum more than twice the length of the peduncle and composed of about 20 articulations, the 1st of which is rather large, about equal in length to the 4 succeeding ones combined; accessory appendage scarcely attaining one third of the length of the flagellum and 6-articulate. Inferior antennæ but little longer than the superior, flagellum composed of about 24 articulations. Epistome somewhat more projecting than in the type species, but broadly rounded in front. Anterior gnathopoda with the propodos a little longer than the carpus, palmar edge slightly flexuous and defined below by an obtuse angle. Posterior gnathopoda with the propodos rather short, oval, scarcely half the length of the carpus, dactylus small. Pereiopoda about as in *H. cicada*. Last pair of uropoda with the inner ramus distinctly longer than the basal joint of the outer. Telson rather narrow, about twice as long as broad, and having only a single pair of dorsal denticles. Body pellucid, with a faint tinge of pale reddish yellow. Length of adult female 14 mm.

Remarks. — Though at the first sight very like *H. cicada*, this species may on closer examination be readily distinguished by the somewhat different form of the cephalon, of the 4th pair of coxal plates and of the last pair of epimeral plates of the metasome. Moreover the superior antennæ are comparatively rather more slender and especially distinguished by the considerably larger size of the 1st joint of the flagellum.

Occurrence. — This species is not nearly so frequently met with as the preceding one. Yet it would seem to occur along the whole West coast of Norway, at least up to the Trondhjemsfjord, in depths varying from 50 to 150 fathoms. On the Norwegian North Atlantic Expedition it was collected rather plentifully in the outer part of the Sognefjord at Stat. 8. It was, however, at that time confounded with *H. cicada*.

40. **Hoplonyx acutus,** G. O. Sars, n. sp.

(Pl. 33, fig. 2).

Body somewhat more robust than in the last species, with broadly rounded back. Cephalon about the length of the 1st segment of mesosome, lateral corners greatly produced and acuminate at the tip. Anterior coxal plates scarcely twice as deep as the body, but considerably broader than in the 2 preceding species; 1st pair not tapering below, anterior edge concaved; the 2 succeeding pairs widening distally; 5th pair considerably expanded in their lower part and projecting posteriorly as a rather narrow obtusely acuminated lobe; 5th pair a little more broad than deep. Last pair of epimeral plates of metasome rectangular, lateral corners but very slightly produced, posterior edge nearly straight. First segment of urosome not distinctly depressed dorsally. Eyes about as in *H. similis.* Superior antennæ in female rather slender, flagellum about twice the length of the peduncle and composed of about 15 articulations, the 1st of which is rather large, almost equalling in length the 5 succeeding ones combined; accessory appendage nearly half the length of the flagellum and 6-articulate. Inferior antennæ distinctly longer than the superior, flagellum composed of about 24 articulations. Anterior gnathopoda with the propodos somewhat longer tham the carpus, palmar edge nearly straight and defined below by an obtuse angle. Posterior gnathopoda with the propodos fully half the length of the carpus, somewhat dilated distally and obliquely truncated at the tip, dactylus stronger than usual. Pereiopoda about as in the 2 preceding species. Last pair of uropoda with the rami nearly equal in length. Telson rather narrow, fully twice as long as broad and having 2 pairs of dorsal denticles. Colour pale yellowish with a faint reddish tinge; ova in the marsupial pouch orange-coloured. Length of adult female 13 mm.

Remarks. — The present species may be readily distinguished by the greatly projecting and acuminate lateral corners of the cephalon, as also by the form of the 4 anterior pairs of coxal plates and of the last epimeral plates of the metasome. Otherwise it is very nearly allied to the 2 preceding species.

Occurrence. — Last summer I collected several specimens of this form, both male and female, in the Trondhjemsfjord at Vennæs. They were picked up from a dead fish fastened on a fishing line let down in a depth of about 150 fathoms. It would also seem to occur off the west coast of Norway, as I have found some specimens among the vast material of *H. cicada* I collected in different localities and at different times, but the exact locality I cannot yet state with certainty.

41. **Hoplonyx albidus,** G. O. Sars, n. sp.

(Pl. 33, fig. 3.)

Body rather short and stout, though somewhat compressed. Cephalon about the length of the 1st segment of mesosome, lateral corners but very little projecting and nearly rectangular. Anterior coxal plates rather large, more than twice as deep as the body; 1st pair tapering below, with the extremity narrowly rounded; 4th pair with the posterior expansion rather short and broad, obliquely truncated at the tip; 5th pair about as deep as broad. Last pair of epimeral plates of metasome rectangular, not at all produced at the lateral corners, posterior edge straight. First segment of urosome deeply depressed at the base dorsally. Eyes much larger than in any of the other species and less distinctly sigmoid in form, visual elements indistinct, pigment light red. Superior antennæ in female comparatively less slender than in the 2 preceding species, flagellum not quite half the length of the peduncle and composed of about 15 articulations, the 1st of which somewhat exceeds in length the 3 succeeding ones combined; accessory appendage about half the length of the flagellum and 8-articulate. Inferior antennæ considerably longer than the superior, flagellum composed of about 28 articulations. Epistome considerably projecting in front of the anterior lip and obtusely angulated. Anterior gnathopoda somewhat less elongated than in the other species, propodos scarcely longer than the carpus, palmar edge indistinctly defined below. Posterior gnathopoda with the propodos rather narrow, not widening distally and exceeding the half length of the carpus, dactylus rather small. Pereiopoda comparatively shorter than in the preceding species, especially the 3 posterior pairs, the basal joint of which is very large, nearly equalling in length the remainder part of the leg. Last pair of uropoda with the rami somewhat broader than in the other species, the inner shorter than the outer. Telson likewise broader, not twice as long as broad, and having 2 pairs of dorsal denticles. Colour uniformly whitish, without any reddish tinge; ova in the marsupial pouch bright red. Length of adult female 12 mm.

Remarks. — This form may be easily distinguished from the other species of the genus by its comparatively robust body, the form of the cephalon, the unusually deep coxal plates, the absolute want of any projection on the last pair of epimeral plates of the metasome, and the deep dorsal impression on the 1st segment of the urosome. In its living state it is moreover at once recognised by its uniform whitish colour and the very large bright red eyes.

Occurrence. — I have only met with this pretty species in the region of the deep sea corals at depths varying from 80 to 150 fathoms. It would seem to occur in several places off the West coast of Norway and so far North as Selsövig in Nordland, lying exactly in the latitude of the polar circle. In the Trondhjemsfjord I have found it in great abundance, especially in the steep slope of the bottom where the *Paragorgia arborea* grows.

42. **Hoplonyx leucophthalmus**, G. O. Sars, n. sp.

(Pl. 34, fig. 1.)

Body considerably more slender than in the last species and rather compressed. Cephalon a little longer than the 1st segment of mesosome, lateral corners somewhat projecting and obtusely angular at the tip. Anterior coxal plates about twice as deep as the body and successively increasing in size posteriorly; 1st pair narrowly rounded at the tip; 4th pair with the posterior expansion rather broad and obliquely truncated at the tip; 5th pair about as deep as broad. Last pair of epimeral plates of metasome produced at the lateral corners to a sharp point. First segment of urosome but slightly depressed dorsally. Eyes narrow, sigmoid in form and without any distinct visual elements, so that they quite disappear in alcoholic specimens, pigment whitish. Superior antennæ in female rather slender, longer than the cephalon and the 3 first segments of mesosome combined, flagellum nearly 3 times as long as the peduncle and composed of about 18 articulations, the 1st of which equals in length the 4 succeeding ones combined; accessory appendage scarcely attaining one third of the length of the flagellum and 6-articulate. Epistome considerably projecting in front of the anterior lip and evenly rounded. Anterior gnathopoda rather slender, propodos about the length of the carpus, palmar edge somewhat flexuous and defined below by an indistinct obtuse angle. Posterior gnathopoda with the propodos short and broad, oval, not attaining half the length of the carpus. Pereiopoda rather slender and elongated, penultimate pair the longest. Last pair of uropoda with the inner ramus shorter than the outer. Telson not nearly twice as long as broad and having but a single pair of dorsal denticles. Colour pale reddish yellow, with a more distinct pinkish tinge on the anterior part of the body. Length of adult female 15 mm.

Remarks. — In the living state this form is at once recognized from any of the other species by its light coloured, nearly pure whitish eyes, which are without any trace of distinctly developed visual elements. In its anatomical details it otherwise exhibits a very close relationship to *H. similis*.

Occurrence. — I have met with this species in 2 widely distant localities, viz., in the inner part of the Hardangerfjord, at Utne, and in Trondhjemsfjord at Vennæs, in both places at a very considerable depth. In the last named locality numerous specimens, both male and female, were collected from a dead fish fastened on a fishing line, let down in a depth of about 150 fathoms. It here occurred in company with 2 other species of the genus, viz., *H. cicada* and *H. acutus*, and could with the greatest ease, even by the naked eye, be distinguished from either of these species, on account of its whitish eyes and somewhat different coloration of the body. No intermediate forms between the above described very closely allied species have as yet occurred to me.

43. **Hoplonyx caeculus**, G. O. Sars, n. sp.

(Pl 35, fig. 1.)

Body rather slender and compressed. Cephalon considerably longer than the 1st segment of mesosome, lateral corners produced to an acute rather projecting point. Anterior coxal plates about twice as deep as the body; 1st pair scarcely tapering below; 4th pair with the posterior expansion short and broad, obtusely truncated at the tip; 5th pair comparatively small, about as deep as broad. Last pair of epimeral plates of metasome considerably produced at the lateral corners, forming an acuminated projection. First segment of urosome distinctly depressed at the base dorsally and exhibiting behind the depression a rounded carina. Eyes wholly wanting, not even the slightest trace of pigment being present in the living animal. Superior antennæ about the length of the cephalon and the 2 first segments of mesosome combined, flagellum not nearly attaining twice the length of the peduncle and composed of about 11 articulations, the 1st of which is very large, about equal in length to the 5 succeeding ones combined; accessory appendage exceeding half the length of the flagellum, very slender and 4-articulate, 1st joint larger than the other 3 combined. Epistome scarcely projecting in front of the anterior lip, though being defined from the latter by a distinct indentation. Anterior gnathopoda of the usual slender form, though the ischial joint appears somewhat less elongated than in the other species, propodos about the length of the carpus, palmar edge very oblique, finely denticulated and defined below by an obtuse angle. Posterior gnathopoda with the propodos oblong oval, considerably exceeding half the length of the carpus, palmar edge transversely truncated. Pereiopoda rather slender, with the dactylus long and narrow, the 2 posterior pairs of about equal length; basal joint of the last pair very large, oval, fully as long as the remainder part of the leg. Last pair of uropoda with the rami very narrow, mucroniform, and without any marginal setæ, the outer one being the longer and having the terminal joint spiniform. Telson not nearly twice as long as broad, with 1 or 2 pairs of dorsal denticles, cleft extending nearly to the base. Body pellucid whitish, without any pigmentation. Length of female 5 mm.

Remarks. — I at first believed this little form to belong to the following genus. Having, however, made out its anatomy in detail, I find it to be a true *Hoplonyx*, though differing in some points, especially as to the structure of the last pair of uropoda and the absolute want of eyes, rather markedly from the other species.

Occurrence. — I have as yet only met with 2 specimens of this small species, both being collected in the same place, viz., at Lexvigen, Trondhjemsfjord, from a depth of nearly 150 fathoms.

Gen. 24. **Centromedon,** G. O. Sars, n.

Syn: Anonyx, Lilljeborg (ex parte).

Body, as a rule, short and stout, with rather deep coxal plates. Lateral corners of cephalon acutely produced, as also those of the last pair of epimeral plates of metasome. Eyes imperfectly developed or quite wanting. Antennæ (in female) rather stout and subequal in length. Epistome not at all projecting. Anterior lip large and broadly rounded. Mandibles of moderate size, molar expansion conico-attenuated, palp rather large and originating much nearer the tip than does the latter. First pair of maxillæ with the terminal joint of the palp scarcely expanded at the tip and only armed with a restricted number of spines; 2nd pair with the inner lobe more elongate than in the 2 preceding genera, though a little shorter than the outer. Maxillipeds less strong, masticatory lobe oblong oval, not reaching to the end of the antepenultimate joint of the palp; the latter having the terminal joint comparatively small and scarcely claw-like. Anterior gnathopoda rather stout, imperfectly subcheliform; the propodos obpyriform, without any distinctly defined palmar edge; dactylus of moderate length and simple. Posterior gnathopoda more slender than the anterior, propodos transversely truncated at the lip, dactylus small. Pereiopoda moderately slender, basal joint of the 3 posterior pairs large and laminar; last pair considerably shorter than the 2 preceding ones. Last pair of uropoda rather small, only slightly reaching beyond the preceding pair, rami without any marginal setæ. Telson oblong, deeply cleft, each terminal lobe with 2 apical denticles.

Remarks. — The present new genus is founded upon the small Lysianassid described by Prof. Lilljeborg as *Anonyx pumilus,* which on a closer examination of the anatomical details shows a number of well marked differences from the 2 preceding genera, so as more properly to be regarded the type of a separate genus. The 2 species described by the writer from the Norwegian North Atlantic Expedition as *Anonyx calcaratus* and *Anonyx typhlops* would seem to belong to the same genus, as also a 3rd species procured on the same Expedition, which is still more nearly allied to *C. pumilus,* but which at that time was wrongly confounded with the latter species. The generic name here proposed refers to the spiniform produced last pair of epimeral plates of metasome.

44. **Centromedon pumilus,** (Lilljeborg).

(Pl 34, fig. 2)

Anonyx pumilus, Lilljeborg, On the Lysianassa magellanica etc., p 26, Pl. IV, figs. 35—41.
Syn: Lysianassa producta, Goës.

Body very short and robust, though somewhat compressed, with highly curved back. Cephalon about the length of the 1st segment of mesosome, lateral corners drawn out to a sharply pointed straight spine. Anterior coxal plates nearly 3 times as deep as the body and rather narrow, the 3 first having each at the infero-posterior corner a small dentiform projection; 1st pair slightly tapering below; 4th pair with the posterior expansion rather short and nearly transversely truncated at the tip; 5th pair about as deep as broad. Last pair of epimeral plates of metasome produced at the lateral corners to a sharp upturned spiniform lobe. First segment of urosome slightly impressed dorsally and having behind the depression a small rounded carina. Eyes altogether wanting. Superior antennæ a little shorter than the cephalon and the 2 first segments of mesosome combined; peduncle not very tumeficated, 1st joint about twice the length of the other 2 combined; flagellum scarcely attaining the length of the peduncle and composed of 8 articulations only, the 1st of which about equals in length the 2 succeeding ones taken together; accessory appendage half the length of the flagellum and 3-articulate. Inferior antennæ scarcely longer than the superior, flagellum 9-articulate. Anterior gnathopoda with the propodos about the length of the carpus, tapering distally, inferior edge with a slender spine beyond the middle. Posterior gnathopoda with the propodos exceeding half the length of the carpus, oblong oval in form. Anterior pereiopoda slender, with the propodal joint very narrow and the dactylus much elongated. Posterior pereiopoda rather unequal in length, the penultimate pair being by far the longest; last pair considerably shorter than the antepenultimate one and having the basal joint very large, rounded quadrangular in form, and much longer than the remainder part of the leg. Last pair of uropoda with the inner ramus much shorter than the outer, terminal joint of the latter nearly as long as the basal one and spiniform. Telson gradually tapering distally and having 1 or 2 pairs of dorsal denticles, cleft very narrow and extending far beyond the middle, outer apical denticle longer than the inner. Colour (according to Boeck) whitish with a faint reddish tinge at the end of each segment and of the joints of the antennæ and legs. Length of adult female scarcely exceeding 5 mm.

Remarks. — The present species is easily distinguished from the two forms described by the author from the Norwegian North Atlantic Expedition. The above mentioned third not yet described species, for which I would propose the name of *C. affinis*, differs from the type species, not only by its much larger size, but also by the lateral corners of the cephalon being not straight but slightly upturned at the tip, and by the posterior projection of the last epimeral plates of the metasome being considerably narrower and more produced.

Occurrence. — I have met with this form only very sparingly in a few localities off the West coast of Norway, as also off the coast of Nordland and Finmark, in depths varying from 50 to 100 fathoms. Prof. Lilljeborg found it at Molde, Boeck at Haugesund, and Mr. Schneider at Tromsö.

Distribution. — Arctic Ocean: Spitsbergen (Goës), the Murman Coast (Jarzynsky), the Kara Sea (Hansen), the Siberian Polar Sea (Stuxberg); Bohuslän (Lovén); East coast of North America (Packard).

Gen. 25. **Alibrotus,** Milne-Edwards, 1840.

Syn: Onesimus, Boeck, (ex parte).

Body rather slender and compressed, with not very large coxal plates. Both pairs of antennæ unusually elongated, with the flagella very slender and composed of numerous short articulations; those of the male but little longer than in female and without distinct calceolæ. Epistome not distinctly defined from the anterior lip, both together forming a rounded prominence in front of the buccal area. Posterior lip membranous, with the lobes slightly emarginated at the tip. Mandibles rather strong, the molar expansion narrowly truncated at the tip, palp very large and originating a little nearer the tip than does the latter. First pair of maxillæ with the masticatory lobe large and obliquely truncated; basal lobe small, bisetose; palp comparatively short. Second pair of maxillæ with the inner lobe only half the length of the outer. Maxillipeds well developed, masticatory lobe oblong oval and not reaching to the end of the antepenultimate joint of the palp, the latter large and robust with the joints rather expanded, terminal joint claw-like. Anterior gnathopoda unusually strong, propodos considerably expanded and having a distinctly defined palmar edge. Posterior gnathopoda slender, with the propodos slightly produced at the tip beneath the small dactylus. Pereiopoda slender and elongate, basal joint of the 3 posterior pairs moderately expanded. Last pair of uropoda reaching considerably beyond the preceding pair, outer ramus setous on the inner edge. Telson short and broad, squamiform, entire.

Remarks. — It may perhaps be somewhat doubtful whether the form *Lysianassa chausica*, upon which Milne-Edwards founded his genus *Alibrotus*, is in fact congeneric with the northern species described in the sequel. But as Sp. Bate believes this to be the case, I have thought it right to adopt the generic name proposed by Milne-Edwards. In my opinion *Anonyx littoralis* of Kröyer cannot, as suggested by Boeck, be referred to the same genus as *Anonyx Edwardsii* and *plautus* of the said author, and thus the genus *Onesimus* of Boeck may properly be restricted to the two last named Kröyerian species. From that genus the present is chiefly distinguished by the much more elongated and slender antennæ, by the unusually powerful structure of the anterior gnathopoda and by the fuller development of the last pair of uropoda.

45. **Alibrotus littoralis,** (Kröyer).

(Pl. 35, fig. 2.)

Anonyx littoralis, Kröyer, Nat. Tidsskr. 2den Række, Bd. 1, p. 621.

Body glabrous, curved and rather compressed. Cephalon about the length of the 1st segment of mesosome, lateral corners only slightly projecting and narrowly rounded at the tip. First pair of coxal plates rather large and much expanded distally, anterior and inferior edges forming together an even curve; the 2 succeeding ones much narrower and scarcely twice as deep as the corresponding segments; 4th pair likewise unusually narrow and but very sligthtly expanded in their lower part; 5th pair rounded quadrangular, more broad than deep. Last pair of epimeral plates of metasome nearly rectangular, lateral corners drawn out to a very short point. First segment of urosome slightly depressed dorsally. Eyes comparatively small, rounded oval, pigment red. Superior antennæ in female about the length of the cephalon and the 4 anterior segments of mesosome combined; 1st joint of the peduncle more than twice as long as the other 2 taken together; flagellum very slender, nearly 3 times as long as the peduncle and composed of about 26 articulations, the 1st of which is by far the largest; accessory appendage scarcely exceeding $^1/_4$ of the length of the flagellum and 5-articulate, 1st joint longer than all the others combined. Inferior antennæ a little longer than the superior, basal joint large and globular, flagellum composed of about 30 articulations. Both pairs of antennæ in male having the flagella somewhat longer than in female and composed of a much greater number of articulations. Anterior gnathopoda very powerful, propodos rather broad, quandrangular, and longer than the carpus; palmar edge somewhat oblique and armed with several denticles, 2 of which placed below are larger than the rest; dactylus rather strong and quite simple. Posterior gnathopoda with the propodos about half the length of the carpus and oblong in form. Anterior pereiopoda rather powerful, with the propodal joint curved and the dactylus unguiform; posterior ones much more slender, penultimate pair the longest and having the propodal joint very elongate and narrow. Last pair of uropoda with both rami broadly lanceolate, the inner a little shorter than the outer. Telson rounded, scarcely more long than broad, tip very slightly emarginated in the middle and having 2 small denticles. Colour whitish. Length of adult female 13 mm.

Remarks. — The present form, originally described by Kröyer as an *Anonyx*, was subsequently, as stated above, referred by Sp. Bate to the genus *Alibrotus* of Milne-Edwards on account of the unusually elongated antennæ and the powerful structure of the anterior gnathopoda, in which respect it certainly differs rather markedly from the genus *Onesimus*, to which it was more recently referred by Boeck.

Occurrence. — I have not myself met with this form off the coast of Norway. But Dr. Goës records its being found by Prof. Fries in the Varangerfjord, Finmark. Quite recently, too, Mr. Schneider told me that he had procured this form rather plentifully in the neighbourhood of Tromsö by sifting the muddy sand at the low water mark. It thus may in fact be regarded as a true littoral form, burying itself in the loose shingle whilst the water retreates. In the Polar Sea it has often been observed in great abundance at the very surface of the water.

Distribution. — Arctic Ocean, widely distributed: Greenland, Spitsbergen, Franz Josephs Land, the Kara Sea, the Sibirian Polar Sea, off Jan Mayen (Norw. North Atlantic Expedition).

Gen. 26. Onesimus, Boeck, 1870.

Body rather thickset, with the coxal plates of moderate size, and the last pair of epimeral plates of metasome distinctly produced at the lateral corners. Antennæ in female not very slender, the inferior ones generally a little longer than the superior; in male considerably more elongate and both provided with distinct calceolæ. Epistome not very projecting, though defined from the anterior lip by a distinct sinus. Posterior lip membranous, each lobe having at the end exteriorly a small denticle. Mandibles rather strong, molar expansion short and thick, nearly transversely truncated at the tip, palp scarcely longer than the mandible and originating at about the same level as the latter. Maxillæ nearly as in *Alibrotus.* Maxillipeds less strong, masticatory lobe reaching to the end of the antepenultimate joint of the palp, the latter not nearly so robust as in the said genus and attenuated distally. Anterior gnathopoda of moderate size, distinctly subcheliform. Posterior gnathopoda about as in *Alibrotus.* Pereiopoda rather short and robust, the 3 posterior pairs sometimes very stout, with the joints laminarly expanded. Last pair of uropoda very short, scarcely reaching beyond the preceding pair, rami without any marginal setæ. Telson short and broad, more or less distinctly incised posteriorly.

Remarks. — In the restriction here adopted this genus is chiefly distinguished from the preceding one by the much more robust form of the body, by the shorter and stouter antennæ and legs, as also by the poor development of the last pair of uropoda. The genus would seem to be chiefly confined to the Arctic seas and contains several species, some of which are, however, as yet imperfectly known. Besides the 3 Norwegian forms described in the sequal, two new species, *O. turgidus* and *O. leucopis* were procured on the Norwegian North Atlantic Expedition, and Dr. Hansen has added 3 new species from the Kara Sea, viz., *O. caricus, brevicaudatus* and *affinis.* Finally Dr. Stuxberg enumerates 3 species from the Siberian Polar Sea, viz., *O. zebra, vorax,* and *abyssicola,* without however giving any description or figure.

46. **Onesimus Edwardsii,** (Kröyer).

(Pl. 36, fig. 1.)

Anonyx Edwardsii, Kröyer, Nat. Tidsskr. 2 Række, Bd. 2, p. 1.

Body rather robust and tumid, with broadly vaulted back. Cephalon about the length of the 1st segment of mesosome, lateral corners but slightly projecting and evenly rounded at the tip. First pair of coxal plates rather expanded below; the 2 succeeding ones scarcely twice as deep as the corresponding segments; 4th pair somewhat broader, with the posterior expansion short and obtusely truncated; 5th pair nearly as deep as broad. Last pair of epimeral plates of metasome produced at the lateral corners to a narrow slightly upturned lobe. First segment of urosome deeply depressed dorsally. Eyes rather large, oblong oval, slightly expanding below, pigment bright red. Superior antennæ in female about the length of the cephalon and the 2 first segments of mesosome combined, 1st joint of the peduncle very large and tumid; flagellum somewhat longer than the peduncle and composed of about 15 articulations, the 1st of which does not exceed the 2 succeeding ones combined; accessory appendage nearly half the length of the flagellum and 6-articulate. Inferior antennæ a little longer than the superior, flagellum composed of about 18 articulations. Anterior gnathopoda with the propodos much longer than the carpus, slightly curved in its outer part, and nearly transversely truncated at the tip, palmar edge somewhat arcuate and finely denticulated. Posterior gnathopoda very slender, propodos exceeding half the length of the carpus and slightly dilated distally. Posterior pereiopoda rather stout, meral joint somewhat thickened; basal joint of last pair oval, equalling in length the remainder part of the leg. Last pair of uropoda with the inner ramus about as long as the basal joint of the outer, and armed on the inner edge with 2 small denticles. Telson rounded, scarcely more long than broad, posterior incision very short, terminal lobes obtusely rounded, each with a very smal denticle. Colour pale reddish yellow; ova in the marsupial pouch bright orange. Length of adult female 11 mm.

Remarks. — The present species may be regarded as the type of the genus. It is easily known from the 2 succeeding species by the obtusely rounded lateral corners of the cephalon, as also by the structure of the anterior gnathopoda, and partly also by the form of the posterior pereiopoda.

Occurrence. — I have myself never met with this form out of the Arctic region. According to Boeck, however, it is said to occur rarely at Lyngholmen in the outer part of the Hardangerfjord, and Bruzelius likewise records the species from the West coast of Norway. In Finmark I have found it not unfrequently at depths varying from 20 to 50 fathoms.

Distribution. — Arctic Ocean widley distributed: Greenland, Spitsbergen, Iceland, Jan Mayen, Franz Josephs Land, the Murman coast, the Kara Sea, the Siberian Polar Sea, Arctic North America; Bohuslän (Bruzelius), Kattegat (Meinert).

47. **Onesimus Normani,** Schneider, M. S.

(Pl. 36, fig. 2).

Body short and stout, though somewhat more compressed than in the preceding species. Cephalon scarcely as long as the 1st segment of mesosome, lateral corners somewhat produced and acute at the tip. First pair of coxal plates scarcely widening below; the 2 succeeding ones nearly twice as deep as the corresponding segments; 4th pair but slightly emarginated posteriorly and forming below the emargination a rather short and blunt projection; 5th pair about as deep as broad. First pair of epimeral plates of metasome produced at the infero-anterior corners to a narrow hook-like projection; last pair with the infero-posterior corners drawn out to a sharp upturned point. First segment of urosome scarcely impressed dorsally. Eyes oblong oval, somewhat narrower than in the preceding species, pigment red. Both pairs of antennæ in female very short and stout, nearly subequal in length: superior ones with the peduncle much tumeficated, flagellum but very little longer than the peduncle and composed of 8 articulations only, the 1st of which is very large, about equalling in length the whole remainder part of the flagellum; accessory appendage exceeding half the length of the flagellum and 3-articulate, 1st joint twice the length of the other 2 combined. Inferior antennæ with the flagellum shorter than the peduncle and only composed of 8 articulations. Anterior gnathopoda with the propodos scarcely longer than the carpus, palmar edge straight, densely spinulose and very oblique, inferior angle obsolete. Posterior gnathopoda with the propodos half the length of the carpus and scarcely widening distally. Posterior pereiopoda somewhat less robust than in the preceding species, but otherwise rather similar. Last pair of uropoda with the inner ramus simple lanceolate, without any marginal denticles; penultimate pair with the inner ramus deeply indented beyond the middle, terminal part spiniform. Telson a little more long than broad, posterior incision deeper than in *O. Edwardsii*, terminal lobes slightly indented at the tip. Colour not stated. Length of female 9 mm.

Remarks. — The present new species was first detected by Mr. Schneider in the neighbourhood of Tromsö, Finmarken, and has been named by that author in honour of the well known British naturalist, the Rev. A. Norman, who last summer was accompanied by Mr. Schneider during his investigations of the fauna of the Varangerfjord. I have had an opportunity of seeing his detail drawings of the species and have thereby been enabled to indentify his species with a form recently found by me in one solitary specimen among my material of *O. Edwardsii.* The species is easily distinguished from the latter by the form of the lateral corners of the cephalon, by the very short and stout antennæ and by the structure of the anterior gnathopoda.

Occurrence. — As stated above, Mr. Schneider found this species in the neighbourhood of Tromsö, and the specimen here figured was probably likewise from some place in Finmark.

48. **Onesimus plautus,** (Kröyer).

(Pl. 37, fig. 1·)

Anonyx plautus, Kröyer, Nat. Tidsskr. 2. Række, Bd. 1, p. 629.

Body short and robust, though somewhat compressed. Cephalon longer than the 1st segment of mesosome, lateral corners acute at the tip. Anterior coxal plates rather narrow and about twice as deep as the body; 1st pair scarcely expanded below; 4th pair but very little emarginated posteriorly and obtusely produced below the emargination; 5th pair rather large, fully as deep as broad. Last pair of epimeral plates of metasome considerably produced at the lateral corners and terminating with an upturned point. First segment of urosome but very slightly impressed dorsally. Eyes irregularly oval and considerably expanded below, in male much larger than in female, pigment red. Superior antennæ in female about the length of the cephalon and the 2 first segments of mesosome combined; peduncle rather thick; flagellum attenuated, somewhat longer than the peduncle and composed of about 11 articulations, the 1st of which about equals in length the 3 succeeding ones combined; accessory appendage a little exceeding the half length of the flagellum and 4-articulate, 1st joint longer than the others combined. Inferior antennæ somewhat longer than the superior, flagellum composed of about 13 articulations. Both pairs of antennæ in male considerably longer than in female, the flagella being very slender and composed of a greater number of articulations. Anterior gnathopoda with the propodos about the length of the carpus and nearly transversely truncated at the tip, though the inferior corner is rounded off. Posterior gnathopoda with the propodos exceeding half the length of the carpus and slightly dilated distally. Posterior periopoda very short and strongly built, meral joint in all considerably expanded, basal joint of last pair oblong oval and much longer than the remainder part of the leg. Last pair of uropoda with both rami quite naked, the inner the shorter. Telson rounded oval, a little more long than broad, posterior incision narrow and not nearly extending to the middle, terminal lobes indented at the tip. Colour (according to Kröyer) reddish yellow, the back being somewhat darker. Length of adult female 8 mm.

Remarks. — This species, first described by Kröyer, is at once distinguished from any of the 2 preceding ones by the peculiar robust form of the 3 posterior pairs of pereiopoda, in which respect it shows a perplexing resemblance to another rather different Lysianassid, viz., *Menigrates obtusifrons* (Boeck) to be described in the sequel. This apparent resemblance has indeed caused the two forms to be often confounded with each other, as will be shown farther on.

Occurrence. — I have not myself met with this species, but a few specimens are preserved in our University Museum, collected by Boeck off the West coast of Norway at Haugesund.

Distribution. — Arctic Ocean: Greenland, Spitsbergen, the Murman Coast, the Kara Sea, the Siberian Polar Sea (Stuxberg); Bohuslän (Stockholm Museum).

Gen. 27. **Chironesimus**, G. O. Sars, n.

Syn: Anonyx, Hoek (ex parte).

Body thickish, with comparatively large coxal plates; the last pair of epimeral plates of metasome produced at the lateral corners. Antennæ (in female) about as in *Onesimus*, the inferior ones being a little longer than the superior. Epistome not at all projecting. Anterior lip forming in front a rather large and compressed linguiform lobe. Mandibles of moderate size, cutting edge with a secondary tooth on the inner corner, molar expansion tapering to a blunt ciliated point, palp rather large and originating somewhat nearer the tip than does the latter. First pair of maxillæ with the masticatory lobe large and obliquely truncated, terminal spines rather strong and denticulated, basal lobe comparatively small and bisetose, palp normal. Second pair of maxillæ with the lobes rather short, the outer the larger. Maxillipeds with the masticatory lobe broadly oval and scarcely reaching to the end of the antepenultimate joint of the palp; the latter of usual structure. Anterior gnathopoda comparatively short and distinctly subcheliform. Posterior gnathopoda elongated and rather powerful, propodos greatly expanded, with a well defined concaved palmar edge, dactylus strong and curved. Pereiopoda comparatively slender, basal joint of the 3 posterior pairs large and laminar. Branchial lamellæ simple. Last pair of uropoda much larger than in *Onesimus* and reaching considerably beyond the preceding pair, both rami partly setous on the inner edge. Telson oblong and deeply cleft.

Remarks. — The present new genus is intermediate in character between the genera *Onesimus* and *Anonyx*, resembling the former in the general form of the body, the latter in the structure of the oral parts and caudal appendages. From both it is markedly distinguished by the peculiar powerful structure of the posterior gnathopoda, a character which has given rise to the generic title here proposed. It may be observed that two of the species described by Dr. Hansen from the Kara Sea and referred by him to the genus *Onesimus* exhibit a quite similar structure of these limbs, a fact which would seem to indicate a closer relation to the present genus.

49. **Chironesimus Debruynii,** (Hoek).

(Pl. 37, fig. 2).

Anonyx Debruynii, Hoek, Die Crustaceen gesammelt während der Fahrten der »Willem Barents». Niederl. Arch. für Zoologi. Suppl. Bd. 1, p. 44, Pl. III, fig. 30.

Body rather robust and tumid, with broadly rounded back. Cephalon about the length of the 1st segment of mesosome, lateral corners somewhat produced and narrowly rounded at the tip. Anterior coxal plates fully twice as deep as the body; 1st pair scarcely expanded below; 4th pair deeply emarginated posteriorly and forming below the emargination a rather large angular expansion; 5th pair not very large, more broad than deep. Last pair of epimeral plates of metasome produced at the lateral corners to an acute triangular, somewhat upturned lobe. First segment of urosome but slightly depressed dorsally. Eyes oblong oval, a little broader below, pigment red. Superior antennæ about the length of the cephalon and the 2 first segments of mesosome combined; 1st joint of the peduncle very large and thick; flagellum exceeding the peduncle by about $^1/_4$ of its length and composed of about 11 articulations, the 1st of which equals in length the 3 succeeding ones combined; accessory appendage about half the length of the flagellum and 6-articulate, 1st joint being very large and somewhat expanded. Inferior antennæ a little longer than the superior, the 2 outer peduncular joints nearly of uniform length, flagellum composed of about 15 articulations. Anterior gnathopoda with the propodos scarcely as long as the carpus and much narrower, palmar edge slightly concaved and defined below almost rectangularly.

Posterior gnathopoda with the propodos very large, gradually expanded distally, palmar edge defined below by a projecting angle and coarsely denticulated in its outer part, dactylus much curved and likewise denticulated on the concaved edge. Basal joint of the last pair of pereiopoda regularly oval in form and about as long as the remainder part of the leg. Last pair of uropoda with the rami nearly equal in length and broadly lanceolate. Telson nearly twice as long as broad and without any trace of dorsal denticles, cleft extending beyond the middle and gradually widening in its outer part, terminal lobes blunt, each with a small apical denticle. Colour not stated. Length of adult female 14 mm.

Remarks. — There cannot, I think, be any doubt that the form described by Hoek as *Anonyx Debruynii* is identical with the present form, although the number of articulations in the antennal flagella is much greater; but this may perhaps be accounted for by the specimen of Hoek being a young male. It is now for the first time added to the Norwegian fauna.

Occurrence. — I have as yet only met with 3 specimens of this form, one of which was found at Christiansund on the West coast of Norway, the two off the Lofoten isles; depth 50—100 fathoms.

Distribution. — The Barents Sea (Hoek).

Gen. 27. **Menigrates,** Boeck, 1870.

Body of unusually coarse structure, with rather large coxal plates and the last pair of epimeral plates of metasome produced at the lateral corners. Antennæ in both sexes short and stout, those of the male provided with very distinct calceolæ. Epistome flattened in front and not distinctly defined from the anterior lip, both together forming a rather narrow flap-shaped projection. Posterior lip with the lobes narrowly rounded at the tip. Mandibles rather elongated, cutting edge simple, molar expansion very slight, palp of moderate size and originating much nearer the base than does the latter. First pair of maxillæ nearly as in *Onesimus;* second pair with the inner lobe somewhat more elongate, though a little shorter than the outer. Maxillipeds with the masticatory lobe rather large, reaching considerably beyond the antepenultimate joint of the palp, the latter not very large. Anterior gnathopoda not subcheliform, the propodos wanting any distinctly defined palmar edge. Posterior gnathopoda very slender, propodos not at all produced beneath the minute dactylus. Pereiopoda very strong and stout, especially the 3 posterior pairs, the joints of which are in parts much expanded. Last pair of uropoda extremely small, with the rami quite naked. Telson short and broad, rounded, slightly incised posteriorly.

Remarks. — The present genus has been established by Boeck in order to include a form which, though resembling the species of *Onesimus* in its outer habitus, yet exhibits considerable difference in certain characters of apparently generic value, thus in the structure of the oral parts and in that of the anterior gnathopoda. It contains as yet but a single species.

50. **Menigrates obtusifrons**, Boeck.

(Pl. 38, fig. 1.)

Anonyx obtusifrons, Boeck. Forhandl. ved de Skand. Naturf. 8de Møde 1860, p. 643.
Syn: Anonyx brachycercus, Lilljeborg.
» Anonyx plautus, Sp. Bate (not Kröyer).

Body very robust and much tumeficated, with broadly vaulted back. Cephalon shorter than the 1st segment of mesosome, lateral corners somewhat produced and angular at the tip. Anterior coxal plates nearly twice as deep as the body and successively increasing in size posteriorly; 4th pair but slightly expanded in their lower part; 5th pair rather large, about as deep as broad, and produced at the infero-posterior corners to a short deflexed lobe. Last pair of epimeral plates of metasome drawn out at the lateral corners to a short triangular upturned projection. First segment of urosome scarcely impressed dorsally. Eyes of moderate size, oval or reniform, pigment red. Superior antennæ in female scarcely longer than the cephalon and the 1st segment of mesosome combined; peduncle much tumeficated, with the 2 outer joints very short; flagellum but little longer than the peduncle and composed of 8 articulations only, the 1st of which equals in length the 3 succeeding ones combined; accessory appendage exceeding half the length of the flagellum and 4-articulate, 1st joint by far the largest. Inferior antennæ in female scarcely longer than the superior, flagellum 8-articulate; in male a little more elongated, with the flagellum, like that of the superior, composed of a greater number of articulations. Anterior gnathopoda rather powerful; propodos nearly twice the length of the carpus, somewhat curved and gradually tapering distally, dactylus strong and curved. Posterior gnathopoda with the propodos about half the length of the carpus, oblong oval, scarcely dilated distally. Posterior pereiopoda very short and robust, of much the same appearance as in *Onesimus plautus*, the meral joint being considerably expanded and the basal joint, especially of the last pair, very large. Last pair of uropoda scarcely reaching to the end of the preceding pair, inner ramus simple lanceolate and a little shorter than the outer. Telson about as broad as long, posterior incision narrow and not extending to the middle, terminal lobes obtusely truncated at the tip, each with a small apical denticle. Colour pale yellowish with a faint reddish tinge on the anterior division of the body. Length of adult female 13 mm.

Remarks. — Owing to a certain resemblance in its outer habitus and especially in the structure of the posterior pereiopoda to *Onesimus plautus* (Kröyer) this form was confounded with the latter by Sp. Bate, and even Boeck, in determining the specimens of both forms preserved in our University Museum, has fallen into considerable error, some of the specimens having been labelled by him as *Onesimus plautus*, whereas specimens of the latter form were vice-versa determined as *Menigrates obtusifrons.* On a closer examination the present form may, however, easily be destinguished from *Onesimus plautus*, not only by its much more tumid body, but also by the considerably coarser structure of the antennæ and by the very different form of the anterior gnathopoda.

Occurrence. — I have myself only met with this form in 2 localities within the Arctic region of Norway, viz., at Bodö and in Lofoten at depths varying from 20 to 50 fathoms. Prof. Lilljeborg found it, however, at Grip outside Christiansund on the West coast of Norway, and Boeck has stated its occurrence also off the South coast at Mandal. Finally, Mr. Schneider has observed it in the neighbourhood of Tromsö. None of these authors, however, would seem to have observed this form in its fully adult state.

Distribution. — British Isles (Sp. Bate).

Gen. 29. **Lepidepecreum,** Sp. Bate, 1868.

Body short and stout, with the back carinated and the integuments very firm, calcareous. Coxal plates large and deep. Superior antennæ with the joints of the peduncle partly produced anteriorly, accessory appendage very small or quite wanting; in male without any calceolæ but provided with dense tufts of sensitive bristles. Inferior antennæ in female scarcely as long as the superior and much more slender, with the antepenultimate peduncular joint rather produced; in male very elongate, exceeding the length of the body, flagellum very slender, filiform and provided with distinct calceolæ. Epistome forming a broad compressed plate projecting in front of the anterior lip. Mandibles of moderate size, cutting edge simple, molar expansion very slight, palp extremely slender and originating close to the base of the mandible. First pair of maxillæ with the masticatory lobe not very strong and nearly transversely truncated at the tip, basal lobe attenuated, bisetose, palp normal. Second pair of maxillæ with the lobes moderately elongate, the inner somewhat shorter and much narrower than the outer. Maxillepeds comparatively small, masticatory lobe oblong oval and reaching beyond the antepenultimate joint of the palp, the latter poorly developed. Anterior gnathopoda rather slender, subcheliform, propodos narrow, with the palmar edge concaved and defined below by a projecting angle armed with 2 slender spines, dactylus with a secondary denticle near the tip. Posterior gnathopoda likewise very slender and only very sparingly setous, propodos produced beneath the dactylus to a digitiform projection so as to form a complete chela. Anterior pereiopoda slender and feeble in structure, posterior ones with the basal joint laminarly expanded. Last pair of uropoda in female scarcely reaching beyond the preceding pair, rami hardly setous; in male much larger, both rami provided on the inner edge with plumous setæ. Telson conically attenuated and deeply cleft.

Remarks. — The present genus, established by Sp. Bate, is chiefly characterised by the compact, dorsally carinated body, the peculiar structure of the superior antennæ, as also of both pairs of gnathopoda, and by the form of the telson. Besides the 2 northern species described in the sequel, a third species, *L. foraminiferum* (Stebbing), has been added from the Challenger Expedition.

51. **Lepidepecreum carinatum,** Sp. Bate.

(Pl. 38, fig. 2, Pl. 39 fig. 1.)

Lepidepecreum carinatum, Sp. Bate & Westwood, British Sessile-eyed Crustacea, Vol. 2, Appendix, p. 509.

Syn: Anonyx longicornis, Sp. Bate (male).
» Lepidepecreum mirabile, Meinert (female).

Body in female rather short and greatly compressed, dorsal carina distinct along the whole mesosome and metasome, as also on the 1st segment of urosome, forming on the latter and on the last segment of metasome a large and compressed conico-acuminated projection. A lateral carina also is present extending across the upper part of the coxal plates. Body of male considerably more slender, with the metasome comparatively larger and the 2 posterior dorsal projections somewhat smaller and less regular in form. Cephalon in both sexes considerably longer than the 1st segment of mesosome, somewhat constricted on the middle and forming between the superior antennæ a small rostriform projection, lateral corners drawn out to large somewhat deflexed linguiform lobes. Anterior coxal plates rather large, in female fully twice as deep as the body, in male somewhat less deep; 4th pair in female considerably expanded in their inferior part and angularly produced below the deep posterior emargination; 5th pair quadrangular, about as deep as broad, with the posterior edge slightly concaved. Last pair of epimeral plates of metasome not at all produced at the lateral corners. Eyes oval, somewhat larger in male, pigment reddish with an opaque white coating. Superior antennæ in female scarcely longer than the cephalon and the 1st segment of mesosome combined; 1st joint of the peduncle very large, compressed, carinated dorsally and jutting out at the end anteriorly as an obtusely acuminated projection advancing over the succeeding joint, which forms a similar but much smaller projection; flagellum much shorter than the peduncle and composed of but 7 articulations, the 1st of which equals in length the 2 succeeding ones combined; accessory appendage quite wanting. Same antennæ in male a little larger than in female, with the 2nd peduncular joint scarcely produced anteriorly, flagellum 9-articulate, with the 1st joint very large and densely clothed with sensitive bristles. Inferior antennæ in female considerably shorter than the superior, penultimate joint of the peduncle much larger than the ultimate one and slightly produced at the end anteriorly, flagellum very short and 4-articulate. Epistomal plate very large, nearly rectangular. Anterior gnathopoda with the basal joint about the length of the remainder part of the leg, propodos shorter than the carpus and not at all expanded distally. Posterior gnathopoda extremely slender; propodos exceeding the half length of the carpus, oblong triangular, with two transverse rows of strong setæ near the base of the dactylus. Posterior pereiopoda rather robust, basal joint of the 3rd pair rounded, that of the 2 succeeding ones irregularly oval, constricted near the end; meral joint in all rather expanded and finely ciliated on the posterior edge. Last pair of uropoda in female with the rami nearly linear in form, the outer somewhat longer than the inner and without any trace of marginal bristles; those of male lanceolate and considerably expanded at the base. Telson exceedingly narrow and elongate, nearly 3 times as long as broad at the base, gradually tapering to the conical tip; cleft very narrow, fissure-like, and extending far beyond the middle. Colour a chalky white, each segment having dorsally a small orange-coloured patch, more expanded in male. Length of female 7 mm., of male 8 mm.

Remarks. — This is a very pretty and easily recognizable form, though one which shows considerable differences in the two sexes, a fact that indeed has led Sp. Bate to describe the species under two different names, as *Anonyx longicornis* and as *Lepidepecreum carinatum*, the former being the adult male, the latter the female. I think the first named specific appellation must be cancelled as only referring to a masculine character, although it is of somewhat older date than the name subsequently assigned to the female. The form recently described by Prof. Meinert as *Lepidepecreum mirabile* I am unable to distinguish from the present species. The lateral carina, it is true, has not been observed by Sp. Bate; but this carina may easily be overlooked when the animal is only viewed from a lateral standpoint.

Occurrence. — Off the coast of Norway this species would seem to be confined to the most southern part. I have found it rather sparingly at Lushavn, situated at the eastern corner of Lister, and at Mærdö, outside Arendal, at depths varying from 10 to 30 fathoms, in sandy bottom.

Distribution. — British Isles (Sp. Bate), Denmark (Meinert); Mediterranean (found by the author at Spezia).

52. **Lepidepecreum umbo,** (Goës).

(Pl. 39, fig. 2.)

Lysianassa umbo, Goës, Crust. amphip. maris Spetsbergiæ, p. 4, fig. 6.

Body very robust and compact in both sexes, with the back considerably curved; dorsal carina increasing in height posteriorly, the segments being partly produced dorsally at the end; last segment of metasome and 1st of urosome jutting out dorsally as an acute somewhat upturned projection Cephalon about the length of the 1st segment of mesosome, lateral corners considerably produced and acute at the tip. Coxal plates very large and deep, the 4 anterior ones being nearly 3 times as deep as the body; 4th pair rather narrow in their upper part, but considerably expanded below, forming an obtuse linguiform lobe beneath the rather deep emargination; 5th pair unusually large, oval, much more deep than broad, with the infero-posterior corners produced downwards, and exhibiting in the centre a most conspicuous umboniform eminence; 6th pair also rather deep and obliquely truncated at the infero-posterior corners. Last pair of epimeral plates of metasome nearly rectangular, very slightly produced at the lateral corners. Eyes narrow oblong, pigment red. Superior antennæ about twice the length of the cephalon; 1st joint of the peduncle produced at the end in a similar manner as in the preceding species, the other 2 not produced; flagellum in female shorter than the peduncle and composed of 8 articulations, the 1st of which equals in length the 4 succeeding ones combined; accessory appendage distinct, but extremely small, and triarticulate. Inferior antennæ in female nearly as long as the superior, but much more slender, flagellum 8-articulate. Antennæ in male modified in a quite similar manner as in the preceding species. Epistomal plate not quite so large as in that species and obtusely rounded in front. Anterior gnathopoda with the basal joint considerably longer than the remainder part of the leg, propodos about the length of the carpus and slightly dilated distally. Posterior gnathopoda less slender, carpus considerably expanded in its outer part, propodos somewhat stronger than in the preceding species and provided dorsally with 3 rows of setæ. Posterior pereiopoda rather feeble in structure, 3rd pair very small, with the basal joint nearly elliptical and more broad than long, that of the last pair very much expanded and broadly oval in form; meral joint in none of the legs expanded. Last pair of uropoda in female with the rami somewhat broader than in the preceding species, the inner one scarcely longer than the basal joint of the outer, the latter with 2 bristles on the inner edge. Telson oblong triangular, scarcely twice as long as broad at the base; cleft narrow and extending far beyond the middle. Colour bright carneous red. Length of adult female 11 mm.

Remarks. — This form, which was erroneously referred by Boeck to his genus *Orchomene*, is evidently congeneric with the preceding species, agreeing as it does pretty well in all essential points. Yet it is very easily recognized from that species by several well marked characters, viz., by the unusually high and compact body, the very conspicuous lateral umboniform prominence, the much feebler structure of the posterior pereiopoda, and finally by the colour of the body.

Occurrence. — Unlike the preceding species, this is evidently a genuine northern form, rarely occurring out of the Arctic region. I have found it in several places both off the coast of Finmark and off the Lofoten isles in depths varying from 30 to 100 fathoms. The southernmost place where I have met with it is at Brönösund in Nordland.

Distribution. — Arctic Ocean: Spitsbergen (Goës), the White Sea (Jarzynsky), Stat. 48 and 124 of the Norwegian North Atlantic Expedition.

Gen. 30. **Euonyx,** Norman, 1866.

Body robust, with rather firm integuments and large coxal plates. Superior antennæ of moderate size and provided with a well developed accessory appendage. Inferior antennæ in female much longer than the superior.

Epistome not at all projecting. Anterior lip produced in front to an acutely triangular deflexed lobe. Mandibles comparatively small, cutting edge simple, obtuse; molar expansion obsolete, palp very large and originating nearer the tip than the base of the mandible. First pair of maxillæ with the masticatory lobe rather large and obliquely truncated, terminal spines unusually small, claw-like; basal lobe rounded oval, with several apical bristles, palp normal. Second pair of maxillæ with both lobes short and obliquely truncated at the tip. Maxillipeds with the masticatory lobe very small, scarcely larger than the basal lobe, and provided with slender setæ on the edge; palp rather robust. Anterior gnathopoda slender and elongate, sparingly setous, propodos forming together with the dactylus a perfect chela. Posterior gnathopoda stronger than usual, propodos dilated distally, subcheliform; dactylus large and curved. Pereiopoda powerfully developed. Last pair of uropoda reaching beyond the preceding pair, rami lanceolate. Telson oblong, deeply cleft.

Remarks. — This genus established by the Rev. Mr. Norman, is prominently distinguished from oll other Lysianassidæ by the peculiar chelate character of the anterior gnathopoda, as also by the powerful structure of the propodos of the posterior ones. Moreover the oral parts exhibit in their structure several peculiarities, which would seem to point to a semiparasitic habit. Besides the species described in the sequel, the *Opis leptochela* of Sp. Bate undoubtedly belongs to the same genus, and the Rev. Mr. Stebbing has described another species, *E. Normani*, from the Challenger Expedition.

53. **Euonyx chelatus,** Norman.

(Pl. 40, fig. 1).

Euonyx chelatus, Norman, Report of the British Association for the Advancement of Science f. 1866, p. 202.

Body rather strong and thickset, with broadly rounded back. Cephalon somewhat longer than the 1st segment of mesosome, forming anteriorly between the bases of the superior antennæ a blunt curved rostral projection, lateral corners but slightly produced and nearly rectangular. First pair of coxal plates extremely small and rudimentary; the 3 succeeding pairs very large, fully 3 times as deep as the body; the 4th considerably expanded below and jutting out posteriorly as an acute lobe; 5th pair likewise rather large, fully as deep as broad. Last pair of epimeral plates of metasome produced at the lateral corners to a short and blunt point. First segment of urosome deeply impressed at the base dorsally and exhibiting behind the depression a high and compressed hump-like projection. Eyes oblong oval and somewhat constricted at the middle, pigment chalky white. Superior antennæ about the length of the cephalon and the 2 first segments of mesosome combined, 1st joint of the peduncle very large and broad, concaved at the superior (dorsal) edge and jutting out at the end anteriorly as a blunt projection; flagellum nearly twice the length of the peduncle and composed of about 10 articulations, the 1st of which is very large, about equalling in length the 4 succeeding ones combined; accessory appendage not quite half the length of the flagellum and 5-articulate. Inferior antennæ nearly twice the length of the superior, flagellum very slender and composed of about 22 articulations. Anterior gnathopoda extremely slender and nearly naked, propodos scarcely longer than the carpus and rather narrow, chela occupying the outer third part of the propodos. Posterior gnathopoda somewhat longer and much stronger than the anterior, propodos about half the length of the carpus, gradually expanded distally and densely setous at the tip, palmar edge concaved and defined by a projecting angle, dactylus rather strong and curved. Pereiopoda of very powerful structure and edged with fascicles of short spines; carpal joint in all very short, and dactylus strong and curved; basal joint of the 3 posterior pairs not very large, rounded; meral joint considerably expanded. Last pair of uropoda with the rami naked, the inner one scarcely longer than the basal joint of the outer. Telson likewise unarmed, oblong in form, nearly twice as long as broad; cleft narrow, extending far beyond the middle, terminal lobes blunt at the tip. Colour whitish, with a faint yellowish tinge. Length of adult female 10 mm.

Remarks. — The description given by the Rev. Mr. Norman of his *Euonyx chelatus* agrees pretty well with the present form, so that there cannot be any doubt about the identity of both. As to *Opis leptochela* of Sp. Bate, this form, on the other hand, though evidently congeneric, would seem to differ in several characters, thus in the shape of the cephalon and of the coxal plates and in the small size and rounded form of the eyes. Only female specimens have as yet occurred to me. It is now for the first time, added to the Norwegian fauna.

Occurrence. — I have found this remarkable form in two widely distant localities, viz., at Vardö, Finmark, where a single specimen was procured from a depth of 50—60 fathoms, and in the Trondhjemsfjord. In the latter locality it occurred at Leksvigen and Vennæs rather sparingly in the region of the deep sea corals at a depth of 100 to 150 fathoms. It was also last summer procured by Mr. Storm in the outer part of the fjord, at about the same depth. Mr. Norman found his specimen parasitic on *Echinus esculentus,* and the same was also stated by Sp. Bate to have been the case with a specimen of *Opis leptochela* taken by Mr. Brady off the Isle of Man.

Distribution. — British Isles, Hebrides (Norman).

Gen. 31. **Kerguelenia,** Stebbing, 1888.

Body extremely short and compact, with the coxal plates very large and deep, especially those of the 4th pair. Antennæ in both sexes short, the inferior much more slender than the superior, the latter only modified in the male. Oral parts poorly developed. Epistome not projecting. Mandibles blunted at the tip, without any distinct cutting edge or molar expansion, palp slender originating at the tip of the mandible. Maxillæ extremely small, though composed of the usual parts. Maxillipeds with the masticatory and basal lobes rudimentary, palp elongate, with the dactylus styliform. Both pairs of gnathopoda slender and elongate, the anterior nearly naked and terminating with a pointed extremity, the dactylus extending in the same line as the propodos, upon which it is scarcely movable; the posterior ones finely hairy in their outer part, propodos produced beneath the extremely small dactylus so as to form a very minute chela. Anterior pereiopoda slender posterior ones short and robust, with the meral joint considerably expanded, basal joint of 3rd pair nearly linear, that of the 2 last pairs large and laminar. Last pair of uropoda extremely small, with rudimentary rami. Telson likewise very small, rounded, entire.

Remarks. — As to the general habitus of the body, this genus, recently established by the Rev. Mr. Stebbing, somewhat recalls the genus *Acidostoma*, with which it also agrees in the structure of the caudal appendage and in the superior antennæ only being modified in the male. In several other essential characters it differs, however, very materially both from that genus and from the other Lysiannassidæ, thus in the poor development of the oral, parts and in the peculiar structure of the anterior gnathopoda. The discovery of a well marked northern species of this remarkable genus is of considerable interest.

54. **Kerguelenia borealis,** G. O. Sars, n. sp.

(Pl. 40, fig. 2).

Body very compact and strongly built, with the back rounded and more or less sharply curved. Cephalon longer than the 1st segment of mesosome, slightly produced in front between the bases of the superior antennæ, lateral corners but little projecting and nearly rectangular. Anterior coxal plates more than 3 times as deep as the body; 1st pair narrowly rounded at the tip; the 2 succeeding ones subtruncated; 4th pair excedingly large, very deeply emarginated posteriorly and forming below the emargination a large linguiform lobe extending posteriorly so as nearly to encompass the 5th pair; the latter obliquely rounded, slightly bilobed below and a little more broad than deep. Last pair of epimeral plates of metasome obtusely truncated at the lateral corners. First segment of urosome without any dorsal projection. Eyes of moderate size and nearly triangular in form; visual elements imperfectly developed, pigment reddish with a narrow opaque white border. Superior antennæ in female about twice the length of the cephalon, 1st joint of the peduncle large and thick, obtusely produced at the end anteriorly; flagellum scarcely exceeding half the length of the peduncle and composed of 7 articulations, the 1st of which does not differ from the others either in size or structure; accessory appendage about half the length of the flagellum and 4-articulate. Same antennæ in male having the 2 outer joints of the peduncle and the base of the flagellum considerably more tumeficated and provided with a dense brush of long sensitive bristles. Inferior antennæ in both sexes of the very same appearance, scarcely longer and much more slender than the superior, the 3 outer joints of the peduncle nearly equal-sized, flagellum composed of only 7 articulations. Anterior gnathopoda extremely slender, nearly styliform; propodos about the length of the carpus, and gradually tapering distally; dactylus forming the direct continuation of the propodos and provided with a strong secondary tooth and 2 slender setæ. Posterior gnathopoda somewhat more elongate than the anterior, but less slender; propodos oblong, considerably exceeding the half length of the carpus, outer part of the upper edge obliquely deflexed towards the small dactylus and provided with several stiff bristles. Posterior pereiopoda successively diminishing in length, basal joint of the 3rd pair forming below a very slight laminar expansion, that of the 2 last pairs rather broad and rounded quadrangular, exceeding in the last pair the length of the remainder part of the leg. First pair of uropoda normal, 2nd pair considerably shorter, with both rami simple mucronate, without spines. Last pair of uropoda so extremely small as easily to escape attention, rami much shorter than the basal part, the outer the larger. Telson quite hidden between the lateral parts of the last segment, scale-like, tip obtusely truncated. Colour bright orange. Length of adult female 5 mm.

Remarks. — The present species is very nearly allied to *K. compacta* (Stebbing) from the Kerguelen Islands, differing however in a few points, thus in the structure of the dactylus of the anterior gnathopoda, as also in the shape of the basal joint of the 3rd pair of pereiopoda.

Occurrence. — I have met with this remarkable form in 3 different localities off the Norwegian coast, viz., at Hammerfest, Finmark, at Tjötö on the coast of Nordland, and in the Hardangerfjord at Sunde. In all three localities it occurred very sparingly at a depth of 100—150 fathoms.

Fam. 3. Pontoporeiidæ.

Form of body varying in the different genera, now compressed, now very tumid. Cephalon not produced anteriorly in the form of a hood. Coxal plates of moderate size, generally fringed with bristles; those of 5th pair bilobed. Metasome generally well developed, with large epimeral plates. Urosome short and stout. Superior antennæ, as a rule, shorter than the inferior, and furnished with an accessory appendage; joints of the peduncle sharply defined. Epistome not at all projecting. Anterior lip forming a simple rounded prominence; posterior lip quadrilobated, the inner lobes small but well defined. Mandibles comparatively short and thick, with greatly expanded masticatory part; cutting edge divided into 2 superposed lamellæ; molar expansion large and protruding, palp more or less elongate, and 3-articulate. Maxillæ and maxillipeds of usual structure. Gnathopoda comparatively small and feeble in structure, generally imperfectly subcheliform or sometimes approaching to the chelate form. The 3 posterior pairs of pereiopoda more or less dissimilar in structure and adapted for burrowing in the loose bottom deposit. Branchial lamellæ simple; incubatory lamellæ slender, fringed at the tip with long curved setæ. Pleopoda as a rule well developed, especially in the male. Uropoda biramous, last pair unlike the preceding pairs in structure. Telson flattened, more or less deeply cleft.

Remarks. — This family comprises several genera, which on the whole differ rather markedly from each other, both as to the outer habitus and the anatomical structure, so as, perhaps, more properly to be referred to several distinct families. As a characteristic feature common to all the forms under consideration, may be named the great ability of burrowing in the mud or loose bottom deposit, for which purpose the 3 posterior pairs of pereiopoda have been more or less peculiarly modified, the joints being partly laminarly expanded, and armed with strong spines and bristles. The most extreme development in this way is found in the genus *Haustorius* (Lepidactylus), to be described in the sequel. Besides the 6 northern genera recorded in the present work as belonging to this family, a few exotic genera have been established. Thus Dr. Hansen has added an exclusive arctic genus *Prinassus*, and the Rev. Mr. Stebbing describes 2 very distinct new genera from the Challenger Expedition, viz., *Cardenio* and *Platyischnopus*, the former being apparently most nearly allied to the genus *Bathyporeia*, the latter to the genus *Haustorius*.

Gen. 1. **Pontoporeia,** Kröyer, 1842.

Body rather slender, somewhat resembling in form that of the typical Lysianassidæ. Coxal plates densely setous on the distal edge, the 4 anterior pairs nearly of uniform size and subtruncate at the tip; 5th pair with the anterior lobe the larger and more or less deflexed. Antennæ rather powerful, subequal in length, the joints of the peduncle in both pairs sharply defined and furnished with long ciliated setæ; accessory appendage of the superior ones small. Mandibles short and stout, with the masticatory part greatly expanded and furnished with a series of curved spines between the cutting edge and the molar expansion; palp rather slender and densely setous. First pair of maxillæ with the terminal joint of the palp spathulate, and armed at the tip with short spines; basal lobe not very large. Second pair of maxillæ with the outer lobe much broader than the inner. Maxillipeds with the masticatory lobe spinous on the inner edge, and nearly reaching to the end of the antepenultimate joint of the palp; the latter rather stout, with the penultimate joint short and broad, strongly incurved, dactylus small. Gnathopoda rather different in structure: the anterior ones very short and densely setous, carpal joint laminarly expanded, propodos comparatively small, without any distinctly defined palmar edge, dactylus small and feeble; posterior gnathopoda more slender than the anterior, propodos narrow and produced beneath the small dactylus so as to approach a chelate character. The 3 posterior pairs of pereiopoda rather dissimilar, penultimate pair by far the longest, basal joint of this and the preceding pair rather narrow, that of last pair, however, much expanded, clypeiform, and edged with long ciliated setæ; dactylus in all 3 pairs very small. Last pair of uropoda short, both rami uniarticulate, the outer the larger. Telson squamiform and deeply cleft.

Remarks. — As to the external appearance the species of this genus somewhat remind of certain Lysianassidæ, and the genus was in fact referred to that family by Sp. Bate. In the structure of the oral parts, as also in that of the antennæ and legs, are however found several well marked characteristics to distinguish it from the Lysianassidæ, and all recent authors therefore now agree in regarding the genus as the type of a separate family. It is exclusively represented in the northern seas, and comprises as yet only 2 species, both of which belong to the Norwegian fauna.

1. **Pontoporeia femorata**, Kröyer.

(Pl. 41, fig. 1).

Pontoporeia femorata, Kröyer, Nat. Tidsskr. 1 R. Bd. 4, p. 153.
Syn: Pontoporeia furcigera, Bruzelius.

Body glabrous, moderately compressed, with the back broadly rounded. Cephalon about as long as the 2 first segments of mesosome combined, lateral corners rather produced, and angular at the tip. The 3 anterior pairs of coxal plates each with a small dentiform projection at the infero-posteal corner; 1st pair very much expanded distally; 5th pair rather large, with the anterior lobe almost as deep as the preceding pair. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners. First segment of urosome provided dorsally with a peculiar upturned, bifurcated process. Eyes reniform, pigment bright red. Superior antennæ with the 1st joint of the peduncle rather large, longer than the other 2 combined, flagellum considerably shorter than the peduncle, and composed of 9 articulations; accessory appendage very small, biarticulate. Inferior antennæ with the 2 outer joints of the peduncle nearly equal in length, flagellum about the length of these 2 joints combined, and composed of 12 articulations. Anterior gnathopoda having the outer joints much expanded, carpus very broad, forming inferiorly a rounded setous lobe, propodos obliquely oval, with the inferior edge considerably bulging out in its posterior part, dactylus very slender and curved. Posterior gnathopoda with the propodos somewhat shorter than the carpus. Last pair of pereiopoda with the basal joint very large, much longer than the remaining part of the leg, and densely setous at the posterior edge. Last pair of uropoda having the outer ramus considerably larger than the inner, and densely spinous on the outer edge. Telson triangular oval, somewhat more long than broad, cleft extending beyond the middle, terminal lobes narrowly rounded, each with 3 small apical bristles. Colour uniformly pale yellowish. Length of adult female 14 mm.

Remarks. — That this is the Kröyerian species seems to me to be beyond any doubt. True, the habitus-figure given by Kröyer in the work of Gaimard does not show distinctly the characteristic dorsal process of the urosome; but this may simply have been caused by a mere negligence of the lithographer. According to Dr. Hansen, all the specimens determined by Kröyer as Pontoporeia femorata, and preserved in the zool. Museum of Copenhagen, have the «fork» very distinctly developed. The *P. furcigera* of Bruzelius, of which I have had for examination numerous specimens from the Stockholm Museum, cannot, by any means, be specifically distinguished from the form here described.

Occurrence. — I have myself only met with this species off the coast of Finmark in depths varying from 20 to 100 fathoms, muddy bottom. Occasionally it however also occurs farther south off the west coast of Norway, thus in the neighbourhood of Christiansund (M. Sars), and at Karmo (Boeck).

Distribution. — Arctic Ocean widely distributed: Greenland, Spitsbergen, the Murman coast, the White Sea, Matotschkin Schar, the Kara Sea, the Siberian Polar Sea; Labrador; Kattegat, the Baltic.

2, **Pontoporeia affinis**, (Lindström).

(Pl. 41, fig. 2).

Pontoporeia affinis, Lindström, Øfvers. af Kgl. Vet. Akad. Förhandl. 1855, p. 63.

Body somewhat more compressed than in the preceding species, but otherwise rather similar in appearance. Cephalon considerably longer than the 2 first segments of mesosome combined, lateral corners narrowly rounded at the tip. Coxal plates without any dentiform projection at the infero-posteal corner; 1st pair but slightly expanded distally, and scarcely broader than the succeeding ones; 5th pair with the anterior lobe not nearly so deep as in *P. femorata.* Last pair of epimeral plates of metasome nearly right-angled. First segment of urosome without any trace of a dorsal process. Both the metasome and urosome provided dorsally with scattered hair. Eyes small, oval, pigment black. Superior antennæ in female with the flagellum about as long as the peduncle, accessory appendage longer than the last joint of the peduncle, and triarticulate. Flagella of both pairs of antennæ in male considerably more elongate than in female, and divided into a much greater number of articulations. Anterior gnathopoda with the outer joints far less expanded than in *P. femorata*, propodos narrow oval, the inferior edge but very slightly bulging out behind the middle. Posterior gnathopoda with the propodos about as long as the carpus. Last pair of pereiopoda with the basal joint somewhat less expanded than in the preceding species, and scarcely longer than the remaining part of the leg. Last pair of uropoda in female very small, outer ramus with only 3 spines exteriorly. Telson likewise very small, more broad than long, cleft extending about to the middle. Colour yellowish, with a more or less distinct tinge of orange; body-segments often bordered with dark bluish green. Length of adult female scarcely exceeding 8mm.

Remarks. — Although rather nearly allied to the preceding species, this form is at once distinguished, not only by its much smaller size, but also by the absolute want of any dorsal process on the urosome, and by the dark ocular pigment.

Occurrence. — In Norway this form is exclusively a fresh water species, being only found in true lakes, thus in Sognsvand and Elvvaagen in the neighbourhood of Christiania, as also in Orrevand on Jæderen. It here occurs, as a rule, only in the deeper parts of the lakes, at depths varying from 3 to 12 fathoms, being never met with close to the border. As the species elsewhere has also been observed in the sea, it constitutes most probably, as suggested by Prof. Lovén, a remnant of the ancient arctic fauna existing off the coasts of Europe and North America during the glacial epoch, a part of which still remains in the more isolated marine basins, as the Baltic, whereas another part, by the subsequent rising of the land, was left behind in some of the lakes, where the present species, under certain circumstances, was enabled to adapt itself to live in purely fresh water.

Distribution. — Several lakes of Sweden, Finland and Russia, as also the great lakes of North America; the Baltic, Kattegat; the Kara Sea (Hansen); coast of France (Chevreux).

Gen. 2. **Priscilla,** Boeck, 1870.

Body rather robust, with powerfully developed metasome and urosome. The 4 anterior pairs of coxal plates very strong, curved downwards and terminating each with an obtuse deflexed point tipped with long ciliated setæ; 5th pair very small. Antennæ well developed, with the joints of the peduncle densely setous; superior ones shorter than the inferior, and provided with a rather large accessory appendage. Mandibles strong, of a similar structure as in *Pontoporeia*, palp large and robust. First pair of maxillæ with the terminal joint of the palp scarcely expanded distally, basal lobe broadly triangular, and edged with numerous ciliated setæ. Second pair of maxillæ with the lobes nearly equal-sized. Maxillipeds about as in *Pontoporeia.* Gnathopoda rather similar both in size and structure, propodos somewhat expanded, and slightly subcheliform. Anterior pereiopoda of moderate size, dactylus quite rudimentary; the 3 posterior pairs very powerful, and partly edged with dense fascicles of spines, basal joint of the 3rd and 4th pair but little expanded, that of last pair very large and laminar, edged with long ciliated setæ. Uropoda rather robust in structure, last pair with the rami very unequal. Telson comparatively large, laminar, insinuated posteriorly.

Remarks. — This genus established by Boeck exhibits, it is true, some points of agreement with the preceding genus; but in several other characteristics thus in the form of the coxal plates, the structure of the antennæ and gnathopoda, as also in the powerful development of the 3 posterior pairs of pereiopoda, it shows itself to be rather different, and somewhat reminds of the genus *Haustorius.* It contains, at present, but a single species.

3. **Priscilla armata**, Boeck.

(Pl. 42).

Priscilla armata, Boeck, Crust. amphip. bor. & arctica, p. 44

Body on the whole very strongly built, with broadly rounded back and rather hard integuments. Cephalon comparatively small, truncated at the tip, lateral corners evenly rounded, postantennal angle produced to a sharp anteriorly turned point. The 4 anterior pairs of coxal plates successively increasing in size posteriorly, each tipped with 4—6 very long ciliated setæ; 4th pair subtriangular, very slightly emarginated posteriorly in their upper part; 5th pair scarcely larger than the 2 succeeding pairs. The 2 posterior segments of metasome each with an acute triangular upturned projection dorsally; epimeral plates broadly rounded. First segment of urosome without any dorsal projection or sinus. Eyes quite inconspicuous in alcoholic specimens. Superior antennæ about as long as the peduncle of the inferior, 1st peduncular joint fully as long as the other 2 combined, flagellum much shorter than the peduncle and composed of about 10 articulations; accessory appendage considerably exceeding the half length of the flagellum, and 5-articulate. Inferior antennæ powerfully developed, penultimate joint of the peduncle very large, and having, besides some short scattered spines, a series of long ciliated setæ on the posterior edge; flagellum scarcely more than half the length of the peduncle. Gnathopoda with the propodos about as long as the carpus, but somewhat broader, palmar edge in the anterior ones oblique, in the posterior nearly transverse; dactylus in both pairs rather short. Antepenultimate pair of pereiopoda with the basal joint obliquely oval, and about half as long as the remaining part of the leg, upper posterior angle produced to a long upturned uncinate spine. Penultimate pair with the basal joint considerably longer, and very slightly dilated distally, upper angle produced to a similar, but somewhat smaller spine. Last pair of pereiopoda fully as large as the preceding pairs, basal joint nearly orbicular in form, carpal joint gradually expanded distally and armed at the end with several rows of short spines, propodal joint likewise rather strong and coarsely spinous. Last pair of uropoda with the outer ramus spinous on the outer edge, terminal joint small, spiniform, inner ramus very minute. Telson subquadrangular, nearly as broad as long, posterior sinus only occupying the outer fourth part, terminal lobes narrowly truncated, each with 4 small apical spines. Colour not stated. Length 11 mm.

Remarks. — It seems to me somewhat doubtful whether this form may properly be referred to the fauna of Norway. Boeck found some specimens in our University Museum, without exact statement of the locality, and believed them to be from the west coast of Norway, Søndfjord. But the species has never been met with subsequently off the coast of Norway, whereas it has turned out to be a genuine arctic form.

Distribution. — Greenland (Hansen).

Gen. 3. **Bathyporeia,** Lindström, 1855.

Syn: Thersites, Sp. Bate.

Body compressed, glabrous, with the metasome powerfully developed, especially in the male. Cephalon truncated in front. Coxal plates not very large; 1st pair much smaller and narrower than the rest, and turned nearly straight forwards; the 3 succeeding ones subtruncated at the tip, which is densely setous; 4th pair slightly emarginated posteriorly; 5th pair rather broad, though less deep than the preceding ones, posterior lobe the larger. Superior antennæ shorter than the inferior, 1st joint of the peduncle very large and thick, clavate, produced in front to a blunted projection overhanging the remaining part of the peduncle; accessory appendage small, biarticulate, 1st joint spinous, 2nd very narrow, setiform; flagellum in male somewhat coarser than in female, and furnished posteriorly with transverse rows of delicate cilia, anteriorly with a single row of calceolæ. Inferior antennæ rather slender, with the penultimate joint of the peduncle the largest; flagellum in female shorter than the peduncle, in male more or less elongated, filiform, and furnished with distinct calceolæ. Mandibles with the cutting edge unusually produced, lamellæ not dentate, molar expansion well developed, intermediate spines few in number; palp curved with the terminal joint rather narrow. First pair of maxillæ with the terminal joint of the palp incurved, and densely hairy in its outer part, basal lobe about as in *Priscilla.* Second pair of maxillæ as in the latter genus. Maxillipeds, with the masticatory lobe comparatively short and coarsely spinous on the inner edge, palp rather large, with the antepenultimate joint obtusely produced at the end inwards and clothed with numerous transverse rows of very delicate long cilia, penultimate joint much constricted at the base, and abruptly incurved distally, dactylus small. Gnathopoda rather unequal both as to size and structure: the anterior ones very small and scarcely subcheliform, propodos oval; the posterior much more powerful and densely setous, propodos spathulate, having a dense brush of diverging setæ instead of the dactylus. The 2 anterior pairs of pereiopoda comparatively short and stout. The 3 posterior pairs rather dissimilar: antepenultimate pair more or less bent in a sigmoid manner, basal joint laminar, constricted at the base, meral joint greatly expanded and densely setous on the inferior edge, the 2 succeeding joints narrow linear, dactylus wanting; the 2 posterior pairs rather strong and subequal in length, basal joint of the penultimate pair laminarly expanded, that of last pair much narrower, outer joints in both pairs fringed with setæ and tufts of short spines, dactylus rudimentary. Last pair of uropoda with the outer ramus very elongate, biarticulate, inner small, lamelliform. Telson bipartite, each half linear, with a tuft of spines at the tip, and another in the middle of the outer edge.

Remarks. — The present genus established by Lindström, is prominently distinguished by the peculiar development of the 1st peduncular joint of the superior antennæ, as also by the very anomalous structure of the posterior gnathopoda, and of the antepenultimate pair of pereiopoda. As to the form of the last pair of uropoda, it somewhat reminds of certain forms of the family *Gammaridæ*, such as the genus *Niphargus*, and for this cause it was placed by Sp. Bate in the vicinity of that genus. Boeck was, however, quite right in removing it from that family and referring it to the family Pontoporeiidæ, with which it shows a much nearer relationship both in the structure of the oral parts and in other anatomical characters. The genus seems to comprise several very nearly allied species, which however have been generally confounded with each other. Excluding the typical species, I have been able to distinguish no less than 4 different species occurring off the coast of Norway.

4. **Bathyporeia norvegica**, G. O. Sars, n. sp.

(Pl. 43).

? Syn: Bathyporeia pilosa, Boeck (not Lindström).

Body as compared with the other species rather robust, with broadly vaulted back. Cephalon scarcely as long as the 2 first segments of mesosome combined, lateral corners slightly projecting and narrowly rounded. First pair of coxal plates terminating with an acute point, the 2 succeeding ones each with a small dentiform projection at the tip, posteriorly. Last pair of epimeral plates of metasome produced at the infero-lateral corners to a short, but distinct tooth. First segment of urosome deeply impressed at the base dorsally, and having, beyond the depression, 2 small juxtaposed spines and 2 anteriorly curved bristles. Eyes in female reniform, in male much larger, widening upwards and nearly contiguous, pigment dark red. Superior antennæ with the 1st joint of the peduncle longer than the other 2 combined; flagellum in female composed of 8, in male of 13 articulations; accessory appendage about as long as the 2 last joints of the peduncle combined, 1st joint compressed, oblong, with several tufts of spines on both edges, terminal joint very narrow, equalling in length $^1/_3$ of the basal joint. Flagellum of inferior antennæ in female shorter than the 2 outer joints of the peduncle combined, and 8-articulate; in male very elongate and slender, considerably exceeding the length of the body. Anterior gnathopoda with the propodos broadly oval and much shorter than the carpus. Antepenultimate pair of pereiopoda with the meral joint considerably expanded and edged with numerous ciliated setæ; the 2 outer joints combined equalling the length of the meral one. The 2 posterior pairs of pereiopoda with the basal joint about half the length of the remaining part of the leg. Last pair of uropoda with the basal joint of the outer ramus slightly dilated in its distal part, terminal joint about $^1/_3$ as long and setous on both edges. Each half of the telson sublinear with about 9 apical spines and 4 lateral. Body pellucid and nearly colourless. Length of adult female 7 mm; of male 8 mm.

Remarks. — This is by far the largest and finest of the species of Bathyporeia occurring off the coast of Norway, and I have therefore selected it for the anatomical analysis of the oral parts. The species may be readily known from any of the others, not only by its much larger size, but also by the form of the last pair of epimeral plates of the metasome, the lateral corners of which, in both sexes, are drawn out to a distinct dentiform projection. The form described by Boeck as *B. pilosa* would seem to be this species. At least some specimens preserved in our University Museum and determined by Boeck as above, undoubtedly belong to the present form.

Occurrence. — I have myself hitherto only met with this species in a single locality, viz., in the Ognebugt off Jæderen, south coast of Norway. It occurred here in considerable numbers on a bottom of fine sand, depth from 2 to 6 fathoms. The great ability of the animal in burying itself rapidly within the loose bottom deposit, was often observed on keeping some specimens in a glass jar with some sand at the bottom. The above mentioned specimens preserved in our University Museum were collected by Boeck at Farsund.

5. **Bathyporeia pelagica**, Sp. Bate.

(Pl. 44, fig. 1).

Bathyporeia pelagica, Sp. Bate, Cat. Amphip. British Mus. p. 174, Pl. XXXI, fig. 6 (male).
Syn: Bathyporeia pilosa, Stebbing (not Lindström).
» Bathyporeia tenuipes, Meinert.

Body comparatively more slender and compressed than in the preceding species, especially in the male. Cephalon fully as long as the first 2 segments of mesosome combined, lateral corners obtusely rounded. First pair of coxal plates less narrowed in front, tip obtusely pointed; the 2 succeeding pairs with the dentiform projection obsolete. Last pair of epimeral plates of metasome obtusely rounded, without any tooth-like projection at the lateral corners. First segment of urosome deeply impressed at the base dorsally, especially in the male, and having, as in the preceding species, posteriorly a pair of small spines and 2 anteriorly curved bristles. Eyes in female rather small, rounded oval, in male considerably larger, pigment bright red. Superior antennæ with the 1st joint of the peduncle scarcely twice as long as the other 2 combined; flagellum in female composed of 6, in male of 9 articulations; accessory appendage with the basal joint rather narrow and spinous on the outer edge only, terminal joint nearly half as long as the basal. Flagellum of the inferior antennæ in female much shorter than the 2 last peduncular joints combined and 7-articulate, in male about equalling the length of the body. Anterior gnathopoda with the propodos oblong oval, somewhat shorter than the carpus. Pereiopoda nearly as in the preceding species, though less richly setous. Last pair of uropoda with the basal joint of the outer ramus scarcely dilated distally, terminal joint nearly half as long as the former, and without any lateral setæ in the female. Telson with a smaller number of apical spines, lateral spines only 2 on each side. Body very pellucid, and almost colourless. Length of adult female scarcely exceeding 5 mm; that of male about the same.

Remarks. — The redescription of the British form of Bathyporeia by the Rev. Mr. Stebbing has enabled me to identify this species with *B. pelagica* Sp. Bate. Though very nearly allied to the preceding species, it may on closer examination be readily distinguished in both sexes by the obtusely rounded form of the last pair of epimeral plates of the metasome, not to speak of its greatly inferior size. From *B. pilosa* it is, moreover, easily known by the bright red ocular pigment, and by the much more slender form of the 2 posterior pairs of pereiopoda. The form named by Meinert as *B. tenuipes* seems to be this species.

Occurrence. — The present species occurred in great numbers together with the preceding one, in the Ognebugt off Jæderen, and was immediately recognized as a distinct species, though I at first erroneously regarded it as *B. Robertsonii* Sp. Bate *). A single specimen of the same species was collected during the Norwegian North Atlantic Expedition at Rost, the outmost of the Lofoten Isles, and quite recently I have had an opportunity of examining numerous specimens of this form, collected by Mr. Schneider in the neighbourhood of Tromsø, partly within the littoral zone, as also a single male specimen from Vardø. It thus appears that the species occurs along the whole coast of Norway.

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*) See: «Oversigt af Norges Crustaceer» I, p. 84.

Distribution. — Bohuslän (Stockholm Museum), Kattegat (Meinert), British Isles (Sp. Bate and others), coast of France (Chevreux).

6. **Bathyporeia Robertsonii**, Sp. Bate.

(Pl. 44, fig. 2.)

Bathyporeia Robertsonii, Sp. Bate, Cat. Amphip. Brit. Mus. p. 173, Pl. XXXI, fig. 5.

Body of the adult male comparatively slender and compressed, with powerfully developed metasome. Cephalon transversely truncated in front, the lateral corners being not at all projecting. Coxal plates about as in the preceding species. Last pair of epimeral plates of metasome evenly rounded at the lateral corners. First segment of urosome deeply impressed at the base dorsally, the posterior hump having only 2 anteriorly curved bristles, but no trace of any spines. Eyes rather large, oblong oval or reniform, pigment very dark. Superior antennæ with the 1st joint of the peduncle about twice as long as the other 2 combined; flagellum composed of 9 articulations; accessory appendage with the terminal joint extremely small, the basal one rather strong, with a tuft of slender spines in the middle of the inner edge. Inferior antennæ (of the adult male) scarcely exceeding half the length of the body, flagellum about twice the length of the peduncle, and composed of 17 very distinctly defined articulations, each, with the exception of the last 2 bearing at the end anteriorly a rather large calceola. Anterior gnathopoda with the propodos ovate in form and about as long as the carpus, dactylus curved in the form of a hook. Pereiopoda nearly as in *B. pelagica.* Last pair of uropoda with the basal joint of the outer ramus rather expanded, terminal joint very small, scarcely exceeding in length $^1/_5$ of the basal one. Telson about as in *B. pelagica.* Colour, according to Sp. Bate, whitish, mottled along the back with light pink. Length of adult male 6 mm.

Remarks. — On examining the British Bathyporeia (B. pelagica), the Rev. Mr. Stebbing was led to the conclusion, that the 3 forms described by Sp. Bate as *B. pilosa*, *Robertsonii* and *pelagica* were not specifically distinct, the first being the female, the 2nd the young male, and the 3rd the adult male of one and the same species. This may perhaps be correct as regards the 1st and 3rd forms, but he was certainly wrong in referring also *B. Robertsonii* to the same species; for the form named so by Sp. Bate is evidently not a young male but a fully adult one, a fact easily accounted for by the presence of distinct calceolæ on both pairs of antennæ. In young male specimens of *B. pelagica* the inferior antennæ may often be found as short as in

B. Robertsonii, but in this case the calceolæ are always wholly absent, and replaced by simple bristles (see fig. 1. a ^{2} ♂ ÷). The present species is, moreover, at once distinguished from the former by the dark pigment of the eyes, and by the absolute want of spines on the 1st segment of the urosome.

Occurrence. — Of this form only 3 specimens have come under my notice, all of which were adult males. They were found at Sørvær, west coast of Finmark, in a depth of 3—6 fathoms, sandy bottom.

Distribution. — British Isles (Cumbræ), Shetland Isles (Jeffreys), coast of France (Chevreux).

7. **Bathyporeia gracilis**, G. O. Sars, n. sp..

(Pl. 45, fig. 1).

Body rather slender in form, though not very much compressed. Cephalon about the length of the first 2 segments of mesosome combined, truncated in front, the lateral corners obtusely rounded. First pair of coxal plates rather narrow, obtusely pointed at the tip; the 3 succeeding pairs scarcely deeper than the body. Last pair of epimeral plates of metasome regularly rounded at the lateral corners. First segment of urosome very slightly impressed dorsally, and having 2 pairs of very small spines, besides 2 anteriorly curved bristles. Eyes imperfectly developed, and not at all visible in alcoholic specimens. Superior antennæ with the 1st joint of the peduncle about as long as the other 2 combined; flagellum in female composed of 6, in male of 8 articulations; accessory appendage with the terminal joint very small, scarcely exceeding in length $^1/_5$ of the basal one, the latter with the inner edge smooth. Inferior antennæ in female fully twice as long as the superior, flagellum very slender, about the length of the 2 outer peduncular joints combined, and composed of 8 articulations coarsely spinous at the end anteriorly; those of male scarcely longer than in female, flagellum composed of 13 articulations, the first 5 of which are provided with distinct calceolæ. Anterior gnathopoda with the propodos much shorter than the carpus and regularly oval in form. The 3 posterior pairs of pereiopoda much more slender than in any of the other species known; antepenultimate pair with the meral joint but little expanded and scarcely as long as the 2 outer joints combined; the 2 last pairs with the carpal and propodal joints very elongate and narrow. Last pair of uropoda with the terminal joint of the outer ramus about equalling in length $^1/_3$ of the basal one and having both edges smooth. Lobes of the telson rather narrow, each with only 4 apical spines and 2 lateral. Colour not stated. Length of adult female 6 mm; of male about the same.

Remarks. — This is a very distinct species, easily distinguishable in both sexes from the other species here described both by its slender form of body, and by the structure of the inferior antennæ and the 3 posterior pairs of pereiopoda, and finally by the imperfectly developed visual organs.

Occurrence. Only two specimens, male and female, have hitherto come under my notice. They were both taken, a long time ago, off the west coast of Norway, from rather deep water, the exact locality not stated.

8. **Bathyporeia pilosa,** Lindström.

(Pl. 45, fig. 2)

Bathyporcia pilosa, Lindström, Öfvers. af Vet. Akad. Forhandl. 1855, p. 59.

Form of body about as in *B. pelagica*, though perhaps a little more robust. Cephalon obtusely truncated in front. Coxal plates comparatively small, scarcely as deep as the body, 1st pair obtusely pointed at the tip, the 2 succeeding ones without any distinct dentiform projection. Last pair of epimeral plates of metasome obtusely rounded at the lateral corners. First segment of urosome but slightly impressed dorsally and without any trace of spines, having only a pair of very small anteriorly curved bristles. Eyes in female small, rounded oval in form, in male somewhat larger, pigment blackish. Superior antennæ with the 1st joint of the peduncle scarcely twice the length of the other 2 combined; flagellum in female composed of 6, in male of 12 articulations; accessory appendage with the basal joint much coarser than in *B. pelaciga*, terminal joint slightly exceeding in length $^1/_3$ of the former. Inferior antennæ in female but little longer than the superior, flagellum shorter than the 2 outer peduncular joints combined and 8-articulate; those of male nearly attaining the length of the body. Anterior gnathopoda with the propodos about as long as the carpus, and oval in form. Antepenultimate pair of pereiopoda with the meral joint considerably expanded and densely fringed with ciliated setæ, the 2 outer joints comparatively short, and combined by far not attaining the length of the meral one. The 2 posterior pairs of pereiopoda much shorter and coarser in structure than in any of the other species. Last pair of uropoda with the basal joint of the outer ramus rather expanded, terminal joint comparatively small, scarcely exceeding in length $^1/_4$ of the basal. Lobes of telson shorter than in the preceding species, each with 6 apical and 3 lateral spines. Colour not stated. Length of adult female scarcely exceeding 5 mm.

Remarks. — This species, the first one described, somewhat resembles in its general habitus and size *B. pelagica* Sp. Bate, with which it has also been confounded by several authors. On closer examination it is, however, found to differ by a somewhat more robust form of body, by the dark pigment of the eyes and especially by the coarse structure of the 2 posterior pairs of pereiopoda. It also wholly wants the 2 small dorsal spines on the 1st segment of the urosome, present in most other species.

Occurrence. — The species has not yet been observed off the coast of Norway and is only described here in order to show its relation to the other species. The figures here given have been drawn from specimens in the Stockholm Museum. It was first detected by Mr. Lindström in the Baltic off Gotland and has subsequently been found in several other localities both of the Baltic and the Kattegat, in depths varying from 2 to 40 fathoms. The extrascandinavian distribution of the species is very questionable, as it has been generally confounded with other allied species.

Gen. 4. **Haustorius,** Statius Müller, 1775.

Syn: Lepidactylis, Say.
» Pterygocera, Latreille.
» Bellia, Sp. Bate.
» Sulcator, Sp. Bate.

Body short and robust, with rather large coxal plates, the 3 anterior pairs of which are curved and obtusely pointed at the tip. Cephalon depressed and produced in front to a short rostral projection. Metasome poorly developed, with small epimeral plates. Urosome generally folded beneath the metasome. Superior antennæ with the joints of the peduncle sharply defined and densely setous, accessory appendage well developed. Inferior antennæ longer than the superior, penultimate joint of the peduncle laminarly expanded and fringed posteriorly with long ciliated setæ. Mandibles of usual structure, palp rather large. First pair of maxillæ with a densely ciliated flap-shaped expansion outside the basal part, masticatory lobe transversely truncated at the tip, basal lobe not very large, palp well developed with the terminal joint curved, and provided with tufts of slender bristles. Second pair of maxillæ largely developed, outer lobe forming a thin semilunar lamella finely ciliated on the outer edge and fringed along the inner edge with a dense series of very delicate setæ, inner lobe much shorter than the outer, and having outside a sigmoid, setous ridge. Maxillipeds of moderate size, basal and masticatory lobes nearly equal in size, and setous on the inner edge, palp rather large, with the 2nd joint produced at the end interiorly to a rounded lobe, and having, on the inner side, several transverse rows of very delicate bristles, third joint securiform, bent, in the middle, at a right angle, dactylus wanting. Gnathopoda comparatively feeble in structure, propodos of the anterior ones simple, without any distinctly defined palmar edge, that of the posterior ones forming, at the tip, a minute chela. The 2 anterior pairs of pereiopoda comparatively robust, carpal joint having, posteriorly, a rounded lamellar expansion, propodal joint constricted at the base, outer part obtusely rounded. The 3 posterior pairs of pereiopoda very largely developed, with the basal, meral and carpal joints expanded to scale-like pieces, flanking the sides of the animal. Dactylus wanting in all the pereiopoda. Pleopoda poorly developed. Uropoda rather dissimilar in structure, 1st pair comparatively strong, with both rami coarsely spinous at the truncated tips; 2nd pair much smaller, with the rami setous; last pair with the rami slender linear, the outer biarticulate, and longer than the inner, both setous at the tip. Telson forming a broad plate slightly incised in the middle.

Remarks. — Of the several names assigned to this genus, that of *Haustorius* proposed by Statius Müller is by far the oldest, and should therefore, as pointed out by the Rev. Mr. Stebbing, according to the laws of priority, be preferred, though its adjective termination would seem to be less appropriate. Boeck referred the genus to his subfamily *Phoxinæ*, and Dr. Bovallius has subsequently proposed for its reception a new subfamily *Pterygocerina*. In my opinion it should more properly be referred to the *Pontoporeiidæ*, exhibiting, as it does, several points of evident agreement on the one side with such true Pontoporeiidæ as the genus *Priscilla*, on the other with the genus *Urothoe*, now generally referred to the same family. The genus comprises, as yet, but a single species, though it may perhaps be questioned whether the *Lepidactylis dytiscus* of Say is the same species as the European form here described.

9. **Haustorius arenarius**, (Slabber).

(Pl. 46).

Oniscus arenarius, Slabber, Natuurkundige Verlustigingen etc. p. 92, Pl. 11, fig. 3—4.

Body very tumid, with broadly vaulted back. Cephalon about the length of the first 2 segments of mesosome combined, much depressed in its anterior part, rostral projection short triangular, lateral corners lying nearly in the same plan as the former, acute. The 4 anterior pairs of coxal plates considerably deeper than the body and successively increasing in size posteriorly; 4th pair subtruncated at the tip and very slightly emarginated posteriorly; 5th pair almost twice as broad as it is deep; 6th pair oblique, with the posterior lobe considerably deeper than the anterior. Last segment of metasome much larger than the other two, and flattened above, epimeral plates rounded, with several transverse rows of bristles. Eyes imperfectly developed, inconspicuous in alcoholic specimens. Superior antennæ with the 1st joint of the peduncle shorter than the other 2 combined, 2nd joint fringed posteriorly with long setæ ciliated in a peculiar manner; flagellum shorter than the peduncle and composed of 9 articulations; accessory appendage about half the length of the flagellum and 5-articulate. Inferior antennæ but slightly exceeding in length the superior, penultimate joint of the peduncle by far the largest, and forming posteriorly a broad lamellar expansion fringed with long ciliated setæ, last joint of the peduncle rather short, with the posterior edge bulging out in the middle, and likewise densely setiferous; flagellum shorter than the peduncle, and composed of 10 articulations. Gnathopoda subequal in size, the posterior ones somewhat more slender, propodos in both much smaller than the carpus. Antepenultimate pair of pereiopoda with the meral and carpal joints transversely dilated and armed on the exterior face with several transverse rows of short spines; penultimate pair the largest, meral joint about as large as the basal, carpal joint rounded quadrangular; last pair with the basal joint rather expanded, fully as large as the meral and carpal joints combined, propodal joint somewhat broader than in the 2 preceding pairs. The outer joints in all 3 pairs, edged with tufts of short spines. Last pair of uropoda with the inner ramus somewhat longer than the basal joint of the outer, both provided at the tip with a dense brush of bristles. Telson fully twice as broad as it is long, cleft not extending to the middle, each terminal lobe having a dense tuft of spiniform bristles at the apex and 2 similar bristles on the middle of the outer edge. Colour, according to Sp. Bate, light yellowish gray, or «resembling the sand in which the animal lives». Length of adult female 11 mm.

Remarks. — The external appearance of this creature is so remarkable, that none of the naturalists who have observed it after the time of Slabber, has ever hesitated in regarding it as the type of a very distinct genus. We believe, however, that some of the most striking characteristics, especially the very peculiar development of the pereiopoda, may strictly be explained as merely adaptive modifications standing in close connection with the peculiar habits of the animal, it being indubitably, of all known Amphipoda, the most exquisite burrower.

Occurrence. — I have never myself met with this form, nor seen any Norwegian specimen; but Boeck states its occurrence at Karmo, west coast of Norway, having, however, only found some shrunk fragments of the animal, but no complete specimens. The figures here given have been drawn from specimens kindly sent to the author from Dr. Stuxberg, director of the Museum in Göteborg.

Distribution. — Holland (Slabber), British Isles (Sp. Bate), Kattegat (Bovallius); coast of France (Chevreux); ? east coast of North America (Say).

Gen. 5. **Urothoë,** Dana, 1852.

Syn: Egidia Costa.
» Sulcator, Sp. Bate (ex parte).

Body very short and thick, with the coxal plates of moderate size. Cephalon rather large and broad, slightly produced in front, and forming on each side, behind the insertion of the antennæ, a triangular deflexed lobe, lateral corners very slight. Metasome and urosome normally developed. Superior antennæ similar in the 2 sexes, very slender, joints of the peduncle elongate and nearly cylindric in form, the last 2 generally bent in an elbow-shaped manner; flagellum much shorter than the peduncle; accessory appendage small, but distinctly developed. Inferior antennæ in female scarcely longer than the superior, and generally reflexed along the sides of the cephalon, the 2 outer joints of the peduncle coarsely spinous on the exterior side, flagellum only composed of a very restricted number of articulations; those of male nearly attaining the length of the body, last joint of the peduncle provided anteriorly with a series of very large calceolæ; flagellum very slender and filiform, likewise provided with distinct though much smaller calceolæ. Mandibles unusually strong, cutting part scarcely denticulate, molar expansion large and protruding, no spines between either; palp comparatively small and narrow. First pair of maxillæ rather feeble, masticatory lobe narrowly truncated at the tip, basal lobe very narrow, palp comparatively small, with the terminal joint scarcely larger than the basal, and not at all expanded, nor dentate. Second pair of maxillæ of normal structure, fully as large as the 1st pair, outer lobe somewhat larger than the inner. Maxillipeds of moderate size, masticatory lobe not very large, and spinous on the inner edge, palp well developed, penultimate joint strongly constricted at the base, and gradually dilated distally, nearly club-shaped, dactylus slender and feeble. Gnathopoda almost exactly alike in structure, rather feeble, subcheliform, propodos much smaller than the carpus and triangular in form. All pereiopoda having well developed dactyli; antepenultimate pair somewhat unlike the 2 posterior pairs, basal joint not very large, the outer joints more or less expanded, and provided with long ciliated setæ and transverse rows of spines; the 2 last pair considerably more slender, with the basal joint laminarly expanded, penultimate pair the longest. Second pair of uropoda very small, scarcely half as long as the 1st; last pair well-developed, with both rami foliaceous and setous on both edges, more richly so in the male, outer ramus with a distinct, though rather small terminal joint. Telson of moderate size, scale-like, and cleft nearly to the base.

Remarks. — As already observed by Sp. Bate, this genus exhibits an unmistakable resemblance to the preceding genus both as to habits, and in its general appearance, and also a slight similarity to some of the Phoxocephalidæ, especially the genus *Paraphoxus,* may be found. Boeck was thereby led to refer both these genera to the latter family, though in my opinion their anatomical structure seems to bring them much nearer to the Pontoporeiidæ. The genus here spoken of would seem to comprise a rather great number of nearly allied species. Sp. Bate described, in his well known work, 4 British species as *U. Bairdii*, *marina*, *brevicornis* and *elegans*; but as the distinction of these species, to a great extent, was founded on merely sexual characteristics, their validity has been questioned by most subsequent authors. Quite recently, however, the Rev. Mr. Stebbing has redescribed the 3 latter species in both sexes, and found some minor differences between them, apparently of specific value. The 4th species of Sp. Bate, *U. Bairdii*, which was regarded by Boeck as a synonym to his *U. norvegica*, is, according to the Rev. Mr. Stebbing, only a young male of *U. marina.* Besides these, a well-marked Mediterranean species, *U. pulchella* Costa, is known, and the author has added a new species, *U. abbreviata*, from the Norwegian North Atlantic Expedition. The species on which Dana founded his genus, *U. irrostrata*, is still very imperfectly examined, as is also the case with some other species referred by several authors to the same genus. The very anomalous form described by the Rev. Mr. Stebbing from the Challenger Expedition as *U. lachneëssa*, was subsequently referred by that author to a particular genus *Urothoides.*

10. **Urothoë norvegica**, Boeck.

(Pl. 47).

Urothoë norvegica, Boeck, Forhandl. ved de Skand. Naturf. Møde 1860, p. 647.

Body of female extremely tumid and pulpy, nearly depressed and scarcely attenuated anteriorly, back broadly vaulted; that of male somewhat less tumid, with the metasome comparatively more powerfully developed. Cephalon exceeding in length the first 3 segments of mesosome combined, rostral projection very slight, lateral corners in female nearly obsolete, in male more distinct and almost right-angled. The 2 anterior pairs of coxal plates rather narrow, setous at the truncated tip; 3rd pair considerably larger; 4th pair the largest, obliquely truncated distally, and exhibiting in the middle of the posterior edge a somewhat projecting angle; the 3 posterior pairs comparatively small. Last pair of epimeral plates of metasome nearly right-angled. First segment of urosome flattened above. Eyes in female very small, rounded, in male much larger, broadly oval, pigment in both sexes blackish. Superior antennæ about twice the length of the cephalon, penultimate joint of the peduncle the longest; flagellum in female scarcely attaining the length of that joint and composed of 6 articulations, in male somewhat more elongated and 8-articulate; accessory appendage about half as long as the flagellum and triarticulate. Inferior antennæ in female nearly as long as the superior, penultimate joint of the peduncle by far the largest, flagellum about the length of the last joint of the peduncle, and composed of 3 joints, the 1st of which equals in length the other 2 combined; those of male not quite attaining the length of the body, last joint of the peduncle provided with 7 calceolæ. Antepenultimate pair of pereiopoda with the outer joints moderately expanded, dactylus simple, acuminate. Second pair of uropoda with the rami styliform, not curved in a hook-like manner; last pair with the inner ramus about as long as the basal joint of the outer; both rami in male densely fringed with ciliated setæ. Telson oval triangular, somewhat more long than broad, cleft very narrow, each of the terminal lobes with a slight indentation at the tip, in the bottom of which a short spine and a small bristle are affixed. Colour yellowish, changing in the female to light orange. Length of adult female 6 mm, of male about the same.

Remarks. — This species is very nearly allied to *U. elegans* Sp. Bate, as recently described by the Rev. Mr. Stebbing, and scarcely exhibits any more prominent distinctive character except the coloration. It is also very like *U. marina* of the same author, though differing by its somewhat smaller size, and by the structure of the uropoda.

Occurrence. — I have met with this form not rarely in several localities off the west coast of Norway, as also in the Trondhjemsfjord and along the whole coast of Nordland up to Hasvig in West Finmark. Boeck collected it in the Christianiafjord and at Haugesund. It occurs in depths varying from 20 to 100 fathoms, especially where the bottom consists of a loose sandy clay, in which it may be found to burrow itself with great dexterity.

Distribution. — Shetland Isles (Norman).

Gen. 6. **Argissa,** Boeck, 1870.

Syn: Chimæropsis, Meinert.

Body highly compressed, glabrous, somewhat more slender in male than in female. Cephalon of moderate size, without any rostral projection. Coxal plates very unequally developed, the first 3 pairs rapidly decreasing in size posteriorly; 4th pair, on the other hand, largely developed, especially in the female, and nearly clypeiform. Metasome and urosome well developed, especially in the male. Eyes of very simple structure, exhibiting on each side a restricted number of small lenticular bodies imbedded at the periphery of a common pigmentary mass. Both pairs of antennæ rather slender and only sparsely setous, the superior ones shorter than the inferior and provided with a small accessory appendage. Antennæ of male more slender than in female but without any trace of calceolæ. Mandibles rather large, body navicular in form, cutting edge well developed with both lamellæ denticulate, molar expansion large and protruding; between both a dense series of spiniform bristles; palp unusually small, but consisting of the normal number of joints. First pair of maxillæ with the masticatory lobe rather narrow, basal lobe small, palp well developed, with the terminal joint expanded in its outer part, and denticulate at the tip. Second pair of maxillæ of the usual structure, with both lobes about equal-sized. Maxillipeds with the masticatory lobe of medium size and exhibiting interiorly a simple sharpened edge; palp narrow, almost cylindric, dactylus slender spiniform. Gnathopoda similar in structure, simple, not subcheliform, the propodos attenuated and without any distinctly defined palmar edge. Pereiopoda nearly naked, the 2 anterior pairs very small, the 2 succeeding ones with the basal joint moderately expanded; last pair rather unlike the preceding ones, basal joint largely developed, the outer joints partly laminarly expanded and edged with ciliated setæ; dactylus in all very small. The 2 first pairs of uropoda normal; last pair with the rami foliaceous, the outer one having a very small spiniform terminal joint, inner edge of both rami setous, the setæ in male more developed than in female and finely ciliated. Telson rather large, laminar and deeply cleft.

Remarks. — This is, unquestionably, the most anomalous of the genera referred to the family Pontoporeiidæ. Some characteristics seem, in fact, to point to a closer relationship to quite a different family, viz, that of the *Ampeliscidæ*, and perhaps the genus should more properly have been referred to that family, in spite of the presence of an accessory appendage to the superior antennæ. As, however, Boeck has regarded it as a true Pontoporeiid genus, I prefer, provisionally, to accept his opinion.

11. **Argissa typica**, Boeck.

(Pl. 48).

Argissa typica, Boeck, Crust amphip. bor. & arctica, p. 45.

Syn: Chimæropsis danica, Meinert (male).

Body as a rule strongly curved, exhibiting at first sight an unmistakable resemblance to that of an *Ampelisca*. Cephalon exceeding in length the first 2 segments of mesosome combined, subtruncated in front, lateral corners but little projecting and narrowly rounded. First pair of coxal plates rather large, gradually widening distally, with the edges evenly curved and provided with slender bristles; the 2 succeeding pairs narrowly triangular in form and rapidly decreasing in size; 3rd pair very small; 4th pair in female of extraordinary size, oval in form, and very slightly emarginated posteriorly in its upper part, the edges evenly curved and smooth, those in male considerably smaller; the 2 succeeding pairs of moderate size, with the posterior lobe much deeper than the anterior. Last pair of epimeral plates of metasome nearly rectangular. Urosome in female quite smooth above, in male with 2 vaulted transverse expansions, the posterior very large and overhanging the last segment. Eyes rounded in form, each containing 4 small bigeminous lenticular bodies arranged in regular distance from each other, pigment red with a whitish coating. Superior antennæ in female about the length of the cephalon and the first 3 segments of mesosome combined, joints of the peduncle regularly diminishing in size, the 1st being about as long as the other 2 taken together, all provided with simple scattered bristles, flagellum very slender, about the length of the peduncle, and composed of 7 articulations; accessory appendage very small, scarcely as long as the last joint of the peduncle, biarticulate, terminal joint extremely minute. Same antennæ in male a little more slender, flagellum nearly twice the length of the peduncle, its first 2 articulations fused together into a single rather large joint, provided posteriorly with numerous transverse rows of fine sensitive cilia. Inferior antennæ in female nearly twice as long as the superior, joints of the peduncle narrow cylindric, and nearly smooth, the penultimate one by far the longest; flagellum scarcely longer than the two outer joints of the peduncle combined, and composed of 7 articulations; those of male much more slender and elongated than in female, though not quite attaining the length of the body, flagellum about the length of the peduncle and composed of the same number of joints as in the female. Gnathopoda densely setous, propodos much shorter and narrower than the carpus, dactylus slender and feeble. The 2 anterior pairs of pereiopoda scarcely attaining the length of the gnathopoda and in female almost entirely concealed by the large 4th pair of coxal plates. Penultimate pair of pereiopoda a little more slender than the antepenultimate ones, with the basal joint somewhat smaller and more regularly oval in form; last pair considerably larger than any of the preceding pairs, basal joint smooth, oblong oval, somewhat longer than the remaining part of the leg, and forming posteriorly a deflexed rounded lobe reaching nearly to the end of the meral joint. Last pair of uropoda with the inner ramus a little shorter than the outer, both broadly lanceolate in form. Telson in female subtriangular, cleft extending far beyond the middle and very narrow, fissure-like; in male somewhat more regularly oval in form; in both sexes nearly smooth, excepting a pair very small hair-like bristles at the tip. Colour whitish, pellucid, with an orange tinge on the antennæ and legs. Length of adult female 5 mm, of male 6 mm.

Remarks. — This is the only as yet known species of the genus and cannot be confounded with any other Amphipod. The rather marked sexual difference, present in this genus, has prevented Prof. Meinert from recognizing, in the form he describes as *Chimæropsis danica*, the adult male of *Argissa typica* of Boeck. That both these forms belong to one and the same species cannot be questioned.

Occurrence. — I have met with this remarkable form in two localities off Finmark, viz., at Mehavn, near the North Cape, and in the Varangerfjord, at Vadsø. In both localities it occurred, not infrequently, on a muddy bottom, depth varying from 20 to 100 fathoms. A single specimen I have taken at Egersund, south coast of Norway, and Boeck records it also from Christianiafjord. It thus seems to occur along the whole coast of Norway. The animal is rather sluggish, and, when brought under the microscope, secretes a clear viscid fluid, probably derived from some glandular bodies found imbedded within the basal joint of the 3 posterior pairs of pereiopoda.

Distribution. — Greenland (Hansen), Kattegat (Meinert).

Fam. 4. Phoxocephalidæ.

Body more or less fusiform in shape. Cephalon produced in front to a hooded rostrum covering over the base of the antennæ, lateral corners obsolete, postantennal angle distinct. Coxal plates rather large, the 4 anterior pairs obtusely truncated at the tip; 4th pair the largest; 5th pair bilobed, the posterior lobe the deeper. Metasome not very powerful except in the male. Urosome in female rather stout, in male much narrower and having the segments more or less distinctly carinated dorsally. Eyes, when present, placed on the sides of the cephalon. Antennæ in female comparatively short, the superior ones provided with a well-developed accessory appendage; those in male more or less modified. Epistome not projecting. Anterior and posterior lips about as in the *Pontoporeiidæ.* Mandibles very short, masticatory part but little expanded and strongly incurved, cutting edge well-developed, molar expansion generally very slight, palp rather large. Maxillæ extremely small, 1st pair with the palp poorly developed, basal lobe small and simple; 2nd pair with both lobes short and rounded at the tip. Maxillipeds with the masticatory and basal lobes poorly developed, palp on the other hand large and pediform. Gnathopoda subsimilar, rather powerful, with large distinctly subcheliform hands, the palmar edge of which is defined posteriorly by a more or less projecting thumb-like process armed inside with a strong spine. Anterior pereiopoda of the usual structure, the 3 posterior pairs rather dissimilar, penultimate pair by far the longest, last pair with the basal joint laminarly expanded. Branchial lamellæ simple. Pleopoda in female rather small, in male much more powerful. The 2 anterior pairs of uropoda normal; last pair, as a rule, rather small, with the outer ramus biarticulate and spinous in female. Telson small, cleft to the base.

Remarks. — This family is nearly allied to the *Pontoporeiidæ*, with which I have formerly combined it. As it however contains several closely allied genera, I prefer, at present, to keep it apart as a separate family. The most striking feature of the forms comprised in this family, is undoubtedly the peculiar form of the cephalon, which is produced in front in the form of a hood, covering over the bases of the antennæ. The powerful structure of the gnathopoda also affords a well-marked characteristic to distinguish them from the Pontoporeiidæ. As to habits, all the forms are true burrowers, consequently occurring only where the bottom consists of loose material, as sand or mud. The family comprises, as yet, 4 genera, all of which are represented in the fauna of Norway.

Gen. 1. Phoxocephalus, Stebbing, 1888.

Syn: Phoxus, Kröyer (part).

Body rather stout and moderately compressed. Hood of the cephalon acute. The 4 anterior pairs of coxal plates successively increasing in size posteriorly and provided inferiorly with a few simple bristles; 4th pair not very much expanded distally and but slightly emarginated posteriorly in their upper part; 5th pair with the posterior lobe rounded. Superior antennæ shorter than the inferior; the latter in male very elongated and slender, with the flagellum filiform and provided with distinct calceolæ. Mandibles rather stout, molar expansion distinctly developed, palp of moderate size having the 2 outer joints not very much expanded. First pair of maxillæ with the palp very small, uniarticulate, and tipped by a few slender spines; 2nd pair with the lobes nearly equal-sized. Maxillipeds with the masticatory lobe scarcely larger than the basal one and armed with a series of curved spines increasing in length distally, palp well-developed, with the penultimate joint regular oval, dactylus slender. Gnathopoda more or less unequal in size, the posterior ones being the larger. Antepenultimate pair of pereiopoda with the basal joint laminarly expanded; last pair with the basal joint very large, clypeiform. Last pair of uropoda in female with the inner ramus naked, mucroniform, and much shorter than the outer; those in male much larger, with both rami well-developed, lanceolate, and edged with ciliated setæ. Lobes of telson rather narrow, especially in the male.

Remarks. — The present genus, originally established by Kröyer, constitutes the type of the family. The name *Phoxus*, proposed by that author, having however been preemployed in the Entomology, the Rev. Mr. Stebbing has substituted that of *Phoxocephalus*, and accordingly the name of the family must be changed from *Phoxidæ* to *Phoxocephalidæ*. The genus comprises but a single northern species; for the 2 forms formerly referred by the author to that genus, I now regard as belonging to distinct, though nearly allied genera. Of exotic species, the Rev. Mr. Stebbing has described 2 from the Challenger Expedition as *P. bassi* and *P. Kergueleni*, both only in the male sex, and Dr. Chevreux has added another species, *P. maculatus* from the Expedition of Hirondelle.

1. **Phoxocephalus Holbölli** (Kröyer).

(Pl. 49).

Phoxus Holbölli, Kröyer, Nat. Tidsskr. 1 R., p. 157.

Syn: Phoxus Kröyeri, Stimpson.

Body quite glabrous and rather high in proportion to its breadth. Cephalon about the length of the 3 anterior segments of mesosome combined, upper face nearly plain, hood acute triangular, reaching about to the end of the peduncle of the superior antennæ, postantennal corners nearly right-angled. First pair of coxal plates but very little expanded distally and scarcely different in form from the 2 succeeding ones, all 3 pairs oblong quadrangular in form, with a series of about 10 simple bristles on the posterior half of the distal edge; 4th pair scarcely broader in its outer part than at the base, obliquely truncated posteriorly and exhibiting a somewhat projecting angle above the middle. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, posterior edge slightly arched. Eyes imperfectly developed, consisting of an irregular mass of whitish pigment without any trace of visual elements. Superior antennæ with the 1st joint of the peduncle about the length of the other 2 combined, flagellum a little shorter than the peduncle, and consisting of 6 articulations, accessory appendage slightly exceeding half the length of the flagellum, and 4-articulate. Inferior antennæ in female considerably longer than the superior, penultimate joint of the peduncle rather large, oblong oval, with 3 transverse rows of spines, and a few slender and simple setæ, flagellum about the length of the 2 outer joints of the peduncle combined and 6-articulate; those of male nearly attaining the length of the body, joints of the peduncle densely hairy in front, flagellum very slender. Gnathopoda not very powerful, the posterior ones only slightly larger than the anterior, hand in both oblong oval, somewhat dilated distally, palmar edge shorter than the hind margin. Antepenultimate pair of pereiopoda with the basal joint moderately expanded, and broadest in its proximal part; penultimate pair about half the length of the body; last pair with the basal joint very large and broad, about as long as the remaining part of the leg, posterior edge strongly curved and finely serrated. Last pair of uropoda in female with the inner ramus scarcely exceeding half the length of the outer, mucroniform and quite naked; those in male with the rami nearly equal-sized, narrow lanceolate and fringed with long ciliated setæ. Lobes of telson rather narrow and but slightly attenuated distally, each with 2 small spines and a little bristle on the obtusely rounded tip. Colour light buff, changing to orange, with opaque whitish shadows. Length of adulte female 7mm, of male about the same.

Remarks. — The above described species, the type of the genus as here restricted, is easily known from the two Challenger species, as also from that characterised by Dr. Chevreux, by the imperfectly developed eyes and by the less powerful gnathopoda. The *Phoxus Kröyeri* of Stimpson is undoubtedly this species.

Occurrence. — The species would seem to be a genuine arctic form, occurring in great abundance off the coast of Finmark, thus at Vadsø, in depths varying from 20 to 50 fathoms, especially where the bottom is sandy. Off the west coast of Norway, it is much more rarely met with, though occurring as far south as Egersund.

Distribution. — Arctic Ocean: Greenland, Spitsbergen, Iceland, Jan Mayen, Labrador; east coast of North America; British Isles, coast of Bohuslän, Kattegat, the Baltic; coast of France (Chevreux).

Gen. 2. Leptophoxus, G. O. Sars, n.

Syn: Phoxus, auctorum (part).

Body much more slender than in the preceding genus. Cephalon slightly keeled anteriorly, tip of the hood more or less distinctly curved downwards. Coxal plates of moderate size and provided at the infero-posteal corner with a few simple bristles; 1st pair more or less expanded distally; 4th pair considerably broader than the preceding ones, and deeply emarginated posteriorly in their upper part; 5th pair with the posterior lobe subtruncated at the tip. Superior antennæ much smaller than the inferior; the latter having the joints of the peduncle considerably expanded, and the flagellum in female very short, in male slender and elongated. Mandibles with the molar expansion poorly developed, forming an extremely small unarmed lappet, palp very large with the 2 outer joints laminarly expanded, the last widening distally and provided on the transversely truncated tip with a series of curved setæ. Maxillæ about as in the preceding genus. Maxillipeds with the basal lobe very small and acuminate at the tip, penultimate joint of the palp more or less produced at the outer corner. Gnathopoda very unequal in size, the posterior ones being much more powerful than the anterior, hand in both nearly quadrangular in form. Antepenultimate pair of pereiopoda having the basal joint considerably expanded; penultimate pair very slender; last pair with the basal joint large and clypeiform. Last pair of uropoda exactly alike in the two sexes, inner ramus very small, spiniform, outer slender, without setæ, but with a few tufts of spines. Telson nearly as in the preceding genus.

Remarks. — I have thought it necessary to establish this new genus in order to include the species formerly named by me as *Phoxus falcatus*. The closer anatomical examination of this form, subsequently instituted by the author, has revealed some peculiar characteristics apparently of generic value, overlooked at that time. Thus the structure of the mandibles is very characteristic, as also the peculiar form of the penultimate joint of the palp of the maxillipeds. Finally, the uniform appearance of the last pair of uropoda in the two sexes, is a characteristic by which this genus materially differs from all known Phoxocephalidæ. Besides the Norwegian species described below, the *Phoxus simplex* of Sp. Bate seems to belong to the present genus. I have received from Dr. Chevreux specimens of a small species from the French coast, which I believe is identical with the above-named British form, and which seems to agree pretly well in all essential characteristics with the Norwegian form, though being evidently specifically distinct.

2. **Leptophoxus falcatus**, G. O. Sars.

(Pl. 50).

Phoxus falcatus, G. O. Sars, Oversigt af Norges Crustaceer I. p. 84.

Syn: Phoxus simplex, Boeck (not Sp. Bate).

Body very slender and compressed, especially in the male. Cephalon exceeding the length of the 3 anterior segments of mesosome combined, hood distinctly carinated along the middle and terminating with a hook-like deflexed point. The 3 anterior pairs of coxal plates each with 3 small bristles at the infero-posteal corner; 1st pair considerably expanded in their outer part, distal edge arched; the 2 succeeding ones regularly quadrangular; 4th pair much broader than the preceding ones, and transversely truncated posteriorly, upper angle nearly right; 5th pair with the posterior lobe slightly expanded and obtusely truncated at the tip, upper angle rather projecting. Last pair of epimeral plates of metasome with the posterior edge considerably arched, lateral corners obtuse. Eyes wholly absent. Superior antennæ much shorter than the cephalon, 1st joint of the peduncle rather thick and considerably exceeding the length of the other 2 combined, flagellum about the length of the peduncle, and composed of 5 articulations, accessory appendage scarcely half the length of the flagellum, and 3-articulate. Inferior antennæ in female nearly twice the length of the superior and more or less strongly curved, the 2 outer joints of the peduncle armed anteriorly with tufts of slender spines, and posteriorly with a few ciliated setæ, flagellum scarcely half the length of the peduncle, and 5-articulate; those of male not fully attaining the length of the body. Penultimate joint of the palp of the maxillipeds produced at the outer corner to a narrow conical process tipped with 4 ciliated setæ. Gnathopoda rather powerful, hand of the anterior ones narrow quadrangular, that of the posterior nearly twice as large, and subquadrate in form, thumb-like process in both rather projecting. Antepenultimate pair of pereiopoda with the basal joint fully as broad as it is long, posterior edge evenly arched; penultimate pair nearly attaining half the length of the body; last pair with the basal joint rather large, though not attaining the length of the remaining part of the leg, posterior edge obliquely arched, and exhibiting a few slight serrations. The first 2 pairs of uropoda with both rami slender, mucroniform and quite naked; last pair projecting considerably beyond the preceding ones, inner ramus extremely small, the outer slender, with the terminal joint very narrow and about half the length of the basal one. Telson slightly dilated in the middle, each lobe tipped with a single spine and a small bristle. Body whitish, pellucid. Length of adult female 4mm; of male about the same.

Remarks. — The present easily recognizable form, which was erroneously identified by Boeck with *Phoxus simplex* Sp. Bate, is at once distinguished from that form by the peculiar manner in which the hood of the cephalon terminates, its point being deflexed in the form of a hook, a characteristic that gave rise to the specific name *falcatus* subsequently proposed by the author. The absolute want of eyes is another characteristic to distinguish this species from the species of Sp. Bate, which, to judge from the above-mentioned specimens from the French coast, has well-developed visual organs, though the pigment, after long immersion in spirit, may, more or less completely, disappear.

Occurrence. — I have met with this form not rarely in several places off the south and west coast of Norway, as also in the Trondhjemsfjord and off the Nordland coast, in depths varying from 30 to 200 fathoms, muddy bottom. Boeck collected it at Haugesund and in the Christianiafjord, where I have also found it rather abundantly.

Distribution. — Coast of Bohuslän (Stockholm Museum).

Gen. 5. **Paraphoxus,** G. O. Sars, n.

Body rather stout, and but little compressed. Hood of cephalon evenly vaulted, not carinated, nor deflexed at the point. The 4 anterior pairs of coxal plates rather deep and provided on the distal edge with a series of simple bristles; 1st pair only very slightly expanded distally; 4th pair rather broad and deeply emarginated posteriorly in their upper part; 5th pair with the posterior lobe rounded. Antennæ in female nearly equal-sized; inferior ones in male not very elongated, flagellum very narrow and composed of a rather restricted number of elongated articulations provided with comparatively large calceolæ. Mandibles with the molar expansion poorly developed, forming a very small lappet tipped with 2 slender spines, palp extremely narrow and but sparingly bristle-beset. First pair of maxillæ with the palp larger than in the 2 preceding genera, though only consisting of a single joint tipped with small bristles; 2nd pair with the inner lobe smaller than the outer. Maxillipeds with the basal lobe obtusely rounded at the tip, penultimate joint of the palp oval, not produced at the outer corner, dactylus very slender and curved. Gnathopoda exactly alike both in size and structure, hand oval, constricted at the base. Pereiopoda about as in *Phoxocephalus.* Last pair of uropoda rather dissimilar in the two sexes, in female comparatively simple in structure, with the inner ramus much shorter than the outer; in male much larger, with both rami well-developed, and fringed with ciliated setæ. Lobes of telson rather narrow.

Remarks. — This new genus is nearly allied to *Phoxocephalus*, though differing markedly in the structure of the mandibles and in the equal-sized gnathopoda, in which respect it would seem to form a transitory link to the genus *Harpinia*, with which genus it also agrees as regards the outer habitus. The species upon which the genus is founded, was formerly referred by the author to the genus *Phoxus* (now Phoxocephalus).

3. **Paraphoxus oculâtus**, G. O. Sars.

(Pl. 51).

Phoxus oculatus, G. O. Sars, Crustacea & Pycnogonida nova in itinere 2do et 3tio Expeditionis Norvegicæ inventa, No. 18.

Body in female rather short and tumid, in male somewhat more compressed. Cephalon nearly attaining the length of the 4 anterior segments of mesosome combined, hood evenly vaulted above, with the terminal edge rounded in front. First pair of coxal plates scarcely broader than the succeeding ones, distal edge subtruncated, and bearing about 14 bristles; the 2 succeeding ones regularly quadrangular, each with about 8 bristles occupying the posterior half of the distal edge; 4th pair fully twice as broad as the preceding ones, the inferior and posterior edges forming together an even curve, upper corner rounded; 5th pair with the posterior lobe scarcely widening below, and obtusely rounded at the tip. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, posterior edge slightly convex. Eyes distinctly developed, in female very small and rounded, in male (even in its not fully developed state) very large, occupying nearly the whole height of the cephalon, and oblong oval or reniform, pigment dark. Superior antennæ in female rather slender, about equalling in length the cephalon, 1st joint of the peduncle about as long as the other 2 combined, flagellum somewhat shorter than the peduncle and composed of 7 articulations, accessory appendage half the length of the flagellum and 4-articulate; those in male somewhat more elongated, with a dense brush of hairs inside the 1st peduncular joint, flagellum nearly as long as the peduncle, and provided with distinct calceolæ. Inferior antennæ in female scarcely longer than the superior, penultimate joint of the peduncle the largest, and provided at the end anteriorly with a transverse series of slender spines, flagellum about the length of the outer 2 joints of the peduncle combined, and composed of 8 articulations; those in male scarcely exceeding half the length of the body, penultimate and antepenultimate joints of the peduncle densely hairy in front, last joint with 2 calceolæ in its outer part anteriorly, flagellum composed of about 20 articulations. Gnathopoda with the hand slightly expanded in its outer part, palmar edge shorter than the hind margin, the thumb-like process rather short. The 2 anterior pairs of pereiopoda with the dactylus unusually elongated, fully as long as the propodal joint; antepenultimate pair with the basal joint oblong quadrangular, much greater in length than in breadth; penultimate pair very slender, considerably exceeding half the length of the body; last pair with the basal joint obliquely expanded, posterior edge strongly arched and distinctly serrated, terminal part of the leg rather slender. Last pair of uropoda in female with the inner ramus scarcely half the length of the outer, conical in form, and tipped by 2 small setæ; those in male with both rami lanceolate and nearly equal-sized. Lobes of telson obliquely truncated at the tip, forming inwards a projecting corner, each with 3 small apical bristles. Colour greyish white, semipellucid. Length of adult female 5 mm, of male 4 mm.

Remarks. — This is the only as yet known species of the genus, and of the indigenous Phoxocephalidæ the only form provided with distinctly developed visual organs.

Occurrence. — The species would seem to occur along the whole coast of Norway, in moderate depths from 20 to 100 fathoms, muddy bottom. The most southern locality where I have met with it, is Farsund, the most northern, Vadsø. In the Trondhjemsfjord, I collected it last summer rather abundantly, in a depth of about 100 fathoms.

Distribution. — Jan Mayen (Norw. North Atlantic Exped.), Greenland (Hansen); coast of France (Chevreux).

Gen. 4. **Harpinia,** Boeck 1876.

Syn: Phoxus, Kröyer (part).
» Harpina, Boeck.

Body rather stout, subfusiform, moderately compressed. Hood of cephalon evenly vaulted, not carinated nor deflexed at the tip. Coxal plates rather large and provided on the distal edge with a number of strong plumose setæ; 4th pair very broad in their outer part, forming posteriorly, below the deep emargination, a large rounded lobe; 5th pair with the posterior lobe rather deep and obliquely truncated at the tip, bearing a few plumose setæ at the inferior corner. Eyes in all known species wholly wanting. Superior antennæ with the 1st joint of the peduncle very large and provided at the end inferiorly with a group of large penicillate auditory bristles, penultimate joint slightly expanded distally, and bearing on the posterior edge a number of strong plumose setæ. Inferior antennæ scarcely longer than the superior and strongly curved, penultimate joint of the peduncle exhibiting at the end anteriorly a transverse row of slender spines and forming posteriorly a rounded expansion beset with strong plumose setæ and a number of curved spines. Antennæ in male with the peduncles bearing dense tufts of sensory hairs, 1st joint of the flagellum of the superior ones very large and densely hairy on the inferior edge, flagellum of the inferior ones not at all differing from that in female, calceolæ quite wanting in both pairs. Mandibles with the masticatory part very short, molar expansion extremely small and tipped by 3 slender spines, palp rather narrow and nearly naked except at the obliquely truncated tip. First pair of maxillæ with the palp distinctly biarticulate; 2nd pair with the lobes subequal. Maxillipeds about as in the preceding genera, but with the dactylus considerably smaller. Gnathopoda nearly equal-sized, or the posterior ones slightly larger, hands in both pairs oval, with the palmar edge more or less oblique. Antepenultimate pair of pereiopoda with the basal joint linear and not at all expanded; penultimate pair more or less elongated; last pair comparatively small, with the basal joint laminar. Last pair of uropoda in female rather short, outer ramus larger than the inner and spinous; those in male much more elongated, with both rami knife-shaped and, as a rule, quite naked. Lobes of telson very short and rounded.

Remarks. — This genus, established by Boeck, is chiefly distinguished by the palp of the 1st pair of maxillæ being distinctly biarticulate, and by the narrow linear form of the basal joint of the antepenultimate pair of pereiopoda. The plumose character of most of the setæ clothing the antennæ and legs, as also the distal edge of the coxal plates, affords another easily recognizable characteristic. Finally, the sexual differences are quite peculiar. The genus is abundantly represented in the northern seas, comprising, as it does, no less than 10 species, to be described in the sequel. Of exotic species only a single form has been described by the Rev. Mr. Stebbing from the Challenger Expedition, viz., *H. obtusifrons*, and another species, *H. excavata*, is recorded by Dr. Chevreux from the bay of Gascogne (Expedition of Hirondelle).

4. **Harpinia plumosa**, (Kröyer).

(Pl. 52).

Phoxus plumosus, Kröyer, Nat. Tidsskr. 1 R. Bd. IV, p. 152.

Syn: Phoxus fusiformis, Stimpson.

Body moderately compressed and quite glabrous above, with evenly vaulted back. Cephalon somewhat exceeding in length the 3 anterior segments of mesosome combined, hood but slightly projecting beyond the peduncle of the superior antennæ, terminal edge narrowly rounded at the tip; postantennal corner nearly right-angled. First pair of coxal plates gradually widening below, distal edge obtusely truncated, with about 7 strong plumose setæ; each of the 2 succeeding pairs with from 5 to 6 similar setæ; 4th pair more than twice as broad as the preceding pair, and bearing on the distal edge a series of about 10 setæ; 5th pair reaching to about the middle of the posterior expansion of the preceding pair, inferior corner bearing 4 curved setæ. Last pair of epimeral plates of metasome drawn out to a very long and sharp spiniform projection. Superior antennæ nearly as long as the cephalon, 1st joint of the peduncle very large, considerably longer than the other 2 combined, and bearing at the inferior corner 3 large auditory bristles; flagellum but slightly exceeding half the length of the peduncle, and composed of 6 articulations; accessory appendage somewhat shorter and 5-articulate. Inferior antennæ with the penultimate joint of the peduncle heart-shaped and bearing posteriorly 7 strong plumose setæ and 5 curved spines, flagellum about the length of the 2 outer joints of the peduncle and 5-articulate. Gnathopoda nearly equal-sized, hands in both pairs oval, with the palmar edge shorter than the hind margin. Penultimate pair of pereiopoda rather strong, scarcely exceeding half the length of the body; last pair with the basal joint rather large, posterior expansion reaching to the end of the meral joint, edge exhibiting a few, about 5, indistinct serrations, the 2 lower separated by a distinct excavation. Last pair of uropoda very short, only slightly reaching beyond the preceding pair, inner ramus longer than the basal joint of the outer, mucroniform and quite naked; outer ramus with 3 spines exteriorly, terminal joint spiniform, and exceeding half the length of the basal one. Lobes of telson obtusely rounded at the tip. Length of adult female 7 mm.

Remarks. — Through the kindness of Dr. Hansen, I have had an opportunity of examining the type specimens of Kröyers *Phoxus plumosus* from Greenland, and find them exactly agreeing with the form here described, some specimens of which are preserved in our University Museum, and were examined by Boeck. There cannot therefore be any doubt that this is the true Kröyerian species. The form described by Stimpson as *Phoxus fusiformis* is most probably the same species. It is the type of the genus.

Occurrence. — I have not myself met with this species off the coast of Norway, and as the locality of the above mentioned specimens in our University Museum, is not stated, it would seem to be questionable, whether this species at all can be referred to the fauna of Norway. The form generally recorded by other authors as *H. plumosa* is evidently not that species, but the following one, and Boeck himself most probably confounded both, though he was aware of some differences in the specimens examined by him, speaking, as he does, of a southern variety.

Distribution. — Arctic Ocean: Greenland, Spitsbergen, Nova Semla, the Kara Sea, the Siberian Polar Sea; east coast of North America.

5. **Harpinia neglecta.** G. O. Sars, n. sp.

(Pl. 53, fig. 1).

Syn: Phoxus plumosus, Sp. Bate and most other authors (but not Kröyer).
» Harpinia antennaria, Meinert (male).

In general appearance very like the preceding species, but of somewhat smaller size. Hood of cephalon more produced and reaching considerably beyond the peduncle of the superior antennæ, postantennal corner drawn out to an anteriorly-pointing lanceolate lappet. Metasome densely hairy above, last pair of epimeral plates produced to a spiniform process, which however is somewhat shorter than in the preceding species. Coxal plates and antennæ almost exactly as in that species. Hands of the gnathopoda obliquely oval, palmar edge longer than the hind margin. Penultimate pair of pereiopoda rather elongated, exceeding half the length of the body; last pair smaller than in *H. plumosa*, basal joint obliquely heart-shaped with the posterior expansion not reaching to the end of the meral joint, edge regularly serrated, serrations about 9 in number, and rather small, though well defined, and having between them short hairs. Last pair of uropoda considerably more slender than in *H. plumosa*, inner ramus shorter than the basal joint of the outer, and bearing a single apical bristle, outer ramus with 4 spines exteriorly, terminal joint very small, considerably less than half the length of the basal one, and tipped by a slender spine. Lobes of telson a little more elongated than in the preceding species and narrowly rounded at the tip. — *Adult male* more slender than the female, and having the metasome rather powerful and glabrous above. Last pair of epimeral plates with the spiniform process shorter than in female. Antennæ exhibiting the sexual characteristics very distinctly. Oral parts imperfectly developed. Gnathopoda more feeble than in female, hand of the anterior ones showing no trace of the thumb-like projection, nor of any palmar spine. Last pair of pereiopoda with the basal joint more regularly oval, marginal serrations nearly obsolete. Last pair of uropoda with both rami very narrow and nearly equal-sized. Colour greyish white. Length of adult female 5mm, of male somewhat less.

Remarks. — Although very like the preceding species in its outward appearance, this form may, on closer examination, be readily distinguished by several well-marked characteristics; thus by the comparatively more projected hood of the cephalon, and by the peculiar lanceolate lappet to which the postantennal corners are drawn out; furthermore, by the densely hairy metasome, the more oblique form of the hands of the gnathopoda, the greater length of the penultimate pair of pereiopoda, and by the form and armature of the basal joint of the last pair; finally, by the rather different structure of the last pair of uropoda. The *Phoxus plumosus* of Sp. Bate is undoubtedly this species, as also that recorded under the name *Harpinia plumosa* by most subsequent authors. The form described by Meinert as *Harpinia antennaria* seems to be the adult male of this species. His specific name cannot, however, be retained, as it is based only on a sexual characteristic.

Occurrence. — Of all the species of Harpinia this is by far the commonest. I have met with it in numerous localities along the whole coast of Norway, from the Christianiafjord to Vadsø, in depths varying from 30 to 150 fathoms, muddy bottom.

Distribution. — British Isles, Shetland Isles, Bohuslän, Kattegat, coast of France.

6. **Harpinia pectinata**, G. O. Sars, n. sp.

(Pl. 53, fig. 2).

Body comparatively more slender and compressed than in the 2 preceding species, and quite glabrous above. Cephalon about the length of the 4 anterior segments of mesosome combined, hood considerably projecting beyond the peduncle of the superior antennæ, postantennal corner not produced. The 3 anterior pairs of coxal plates exhibiting, each at the infero-posteal corner, a small but distinct dentiform projection, setæ of the distal edge fewer in number than in the preceding species. Last pair of epimeral plates of metasome produced to a rather short spiniform process. Antennæ comparatively slender, otherwise very similar in structure to those in the 2 preceding species. Hands of the gnathopoda oblong oval, palmar edge about the length of the hind margin. Penultimate pair of pereiopoda rather slender, and about half the length of the body; last pair with the basal joint obliquely expanded so as to project beyond the meral joint, posterior edge divided into 5—6 very coarse serrations pointing downwards. Last pair of uropoda comparatively small, and somewhat resembling in structure those in *H. plumosa*, except that the outer ramus has a smaller number of spines. Lobes of telson very small, obtusely rounded at the tip. Adult male very like that of *H. neglecta*, but considerably smaller. Colour greyish white, pellucid. Length of adult female scarcely exceeding 4 mm.

Remarks. — Also this form exhibits in its outward appearance so close a resemblance to the 2 preceding species, that it may easily, without a closer examination, be confounded with them. It is, however, undoubtedly a distinct species, chiefly characterised by the dentiform projection of the 3 anterior pairs of coxal plates, and by the form and armature of the basal joint of the last pair of pereiopoda. I have formerly confounded this species with *H. serrata* to be next described.

Occurrence. — Off the south and west coast of Norway, this species is by no means rare, occurring, as a rule, in company with *H. neglecta.* It extends northwards to Tromsø, Finmark, where it has been collected rather sparingly by Mr. Schneider.

Distribution. — Coast of Bohuslän (Stockholm Museum).

7. **Harpinia serrata,** G. O. Sars.

(Pl. 54, fig. 1).

Harpinia serrata, G. O. Sars, Crust. & Pycnogonida nova etc. No. 21.

Body unusually robust and rather tumid, with broadly vaulted back. Cephalon but slightly exceeding in length the 3 anterior segments of mesosome combined, hood rather convex above, with blunted tip. Coxal plates large and broad, without any dentiform projection, but with a much greater number of marginal setæ than in most other species; 1st pair considerably widening distally; 5th pair with the posterior lobe very deep, reaching nearly as far down as the preceding pairs. Metasome densely hairy above, last pair of epimeral plates produced to a slightly upturned spiniform projection. Superior antennæ with the 1st joint of the peduncle very large and thick, nearly twice the length of the other 2 combined, flagellum comparatively short and 5-articulate, accessory appendage 4-articulate. Inferior antennæ likewise rather strong and of the usual structure, flagellum short and 5-articulate. Gnathopoda rather powerful, hand oval, with the palmar edge about as long as the hind margin. Penultimate pair of pereiopoda very slender and considerably exceeding half the length of the body; last pair with the basal joint obliquely oval, posterior expansion reaching beyond the meral joint, edge divided into 5 very large and regular, posteriorly-pointing serrations. Last pair of uropoda with the inner ramus scarcely more than half as long as the outer, and bearing 2 unequal setæ at the tip, outer ramus rather slender, with 4 spines exteriorly, terminal joint extremely small, but tipped by 2 rather elongated and slender setæ. Lobes of telson obtusely truncated at the tip. Colour greyish white. Length of adult female 6 mm.

Remarks. — The present form may be easily distinguished from any of the other species by its unusually short and pulpy body, and by the very coarse and regular serrations of the basal joint of the last pair of pereiopoda. In the latter respect, it has some resemblance to *H. pectinata*, but is otherwise rather different.

Occurrence. — The occurrence of this species off the coast of Norway is somewhat questionable, since the earlier statement of the author, of its being observed in the Varangerfjord, was most probably based on a confusion of this species with *H. pectinata*.

Distribution. — Jan Mayen (Norw. North Atlantic Exped.).

8. **Harpinia propinqva**, G. O. Sars, n. sp.

(Pl. 54, fig. 2).

Body more slender than in the last species. Cephalon nearly as long as the 4 anterior segments of mesosome combined, hood evenly vaulted and projecting considerably beyond the peduncle of the superior antennæ. Coxal plates comparatively smaller than in *H. serrata*, with a far smaller number of marginal setæ; 1st pair moderately expanded distally; 5th pair with the posterior lobe less deep. Metasome somewhat stronger than in *H. serrata* and finely hairy above; last pair of epimeral plates produced to a very short dentiform projection. Antennæ somewhat more slender than in the said species. Gnathopoda likewise less robust, hands oblong oval, with the palmar edge very oblique, though scarcely longer than the hind margin. Penultimate pair of pereiopoda rather slender, about half the length of the body; last pair with the basal joint obliquely heart-shaped, posterior expansion scarcely reaching to the end of the meral joint, and only very obscurely serrated. Last pair of uropoda short, inner ramus about the length of the basal joint of the outer, and simple mucroniform, outer ramus with 3 spines exteriorly, terminal joint exceeding half the length of the basal one, and spiniform. Lobes of telson rather short and rounded at the tip. Length of adult female scarcely reaching 5mm.

Remarks. — This species would seem to be most nearly related to *H. neglecta*, from which it, however, may at once be distinguished by the much smaller projection of the last pair of epimeral plates of the metasome, as also by the indistinct serration of the basal joint of the last pair of pereiopoda. In the structure of the uropoda it more resembles *H. plumosa*.

Occurrence. — A few specimens of this form were collected during the Norwegian North Atlantic Expedition, in company with *H. serrata*, off Jan Mayen, but were, at that time, overlooked. Off the coast of Norway, it has not yet been observed, and it is only here described, in order to show its relationship to the other species.

9. **Harpinia mucronata**, G. O. Sars.

(Pl. 54, fig. 3).

Harpinia mucronata. G. O. Sars, Crustacea & Pycnogonida nova etc. No. 22.

Body rather compressed and quite glabrous above. Cephalon about the length of the 4 anterior segments of mesosome combined, hood but slightly convex above, and projecting considerably beyond the peduncle of the superior antennæ. The 3 anterior pairs of coxal plates each with a small dentiform projection at the infero-posteal corner, marginal setæ few in number; 1st pair rather expanded distally; 5th pair somewhat smaller than in the 2 preceding species. Last pair of epimeral plates of metasome drawn out to a long, slightly upturned, spiniform projection. Antennæ rather slender, with the flagella more elongated than in the said species; accessory appendage of the superior ones but little shorter than the flagellum. Gnathopoda of moderate size, hands oblong oval, with the palmar edge slightly exceeding in length the hind margin. Penultimate pair of pereiopoda not very slender and scarcely exceeding half the length of the body; last pair very small, basal joint less expanded than usual, but drawn out at the infero-posteal corner to a posteriorly-pointing acute spur-like projection, defined above by a small excavation and having below a few slight serrations. Last pair of uropoda somewhat larger than in *H. propinqva* but otherwise of much the same structure. Lobes of telson obtusely truncated at the tip. Colour greyish white. Length of adult female slightly exceeding 5 mm.

Remarks. — The present species is at once recognized by the peculiar form of the basal joint of the last pair of pereiopoda, a characteristic which gave rise to the specific name proposed by the author.

Occurrence. — Some specimens of this form were procured during the Norwegian North Atlantic Expedition, on 2 different Stations, both lying immediately outside the coast of Finmark, depth from 148 to 620 fathoms. Another specimen, exactly agreeing with the former, and preserved in the Stockholm Museum, was taken by von Yhlen on the great fishing banks in the North Sea. The species may thus properly be referred to the fauna of Norway.

Distribution. — Greenland (Hansen).

10. **Harpinia truncata**, G. O. Sars, n.sp.

(Pl. 55, fig. 1).

Body rather robust, with broadly vaulted back. Cephalon considerably shorter than the 4 anterior segments of mesosome combined, hood very slightly convex above and projecting beyond the peduncle of the superior antennæ. The 3 anterior pairs of coxal plates without any dentiform projection marginal setæ few in number; 1st pair gradually widening distally; 5th pair with the posterior lobe rather deep. Metasome densely hairy above, last pair of epimeral plates rounded at the lateral corners. Superior antennæ with only 2 large penicillate auditory setæ at the end of the basal joint, flagellum of moderate length and composed of 7 articulations, accessory appendage a little shorter and 6-articulate. Inferior antennæ of the usual structure. Gnathopoda somewhat unequal in size, the posterior ones being considerably more powerful than the anterior, hand in the former oblong oval, in the latter triangular oval, palmar edge longer than the hind margin, especially in the posterior pair, thumb-like process rather coarse. Penultimate pair of pereiopoda exceeding half the length of the body, propodal joint much elongated and provided on the upper edge with 4 recurved ciliated setæ, dactylus very slender, setiform; last pair with the basal joint rather broad, posterior expansion transversely truncated below and exhibiting only a few indistinct serrations. Last pair of uropoda comparatively slender, inner ramus a little shorter than the basal joint of the outer, and bearing a single slender apical seta, outer ramus with 5 spines exteriorly, terminal joint very small and tipped by a slender seta. Lobes of telson rather narrow and somewhat diverging in their outer part, tip rounded. Colour greyish white. Length of adult female 6 mm.

Remarks. — This species is most nearly related to *H. crenulata* Boeck, to be next described, but may be easily distinguished, not only by its much larger size, but also by the rather different shape and armature of the basal joint of the last pair of pereiopoda.

Occurrence. — Last summer, I found 2 specimens of this pretty species in the Trondhjemsfjord at Vennæs in a depth of 100 to 150 fathoms. Two other specimens, exactly agreeing with the former, were contained in a collection of Amphipoda kindly sent to me for examination, from Prof. Loven.

Distribution. — Coast of Bohuslän (Stockholm Museum).

11. **Harpinia crenulata**, Boeck.

(Pl. 55, fig. 2).

Harpinia crenulata, Boeck, Crust. amphip. bor. & artica, p. 56.

Body rather short and stout. Cephalon equalling in length the 3 anterior segments of mesosome combined, hood evenly vaulted and projecting beyond the peduncle of the superior antennæ. Coxal plates about as in *H. truncata*, but with a smaller number of marginal setæ. Metasome densely hairy above; last pair of epimeral plates strongly rounded at the lateral corners, and exhibiting below the middle of the posterior edge, a small sinus defined inferiorly by a sharp upturned denticle, below which sometimes occur 2 or 3 minute serrations. Antennæ about as in *H. truncata*, but with a smaller number of articulations in the flagella. Gnathopoda likewise of a very similar structure, the posterior ones being considerably more powerful than the anterior, with the thumb-like process rather strong. Penultimate pair of pereiopoda extremely slender and elongated, equalling in length $^3/_4$ of the body; basal joint of last pair with the posterior expansion obliquely deflexed and rounded, edge bearing long slender setæ and having between them about 12 serrations, the inferior of which are more or less distinctly bipartite. Last pair of uropoda with the inner ramus scarcely exceeding half the length of the basal joint of the outer; the latter with only 3 spines exteriorly; each ramus tipped by a single slender seta. Lobes of telson less diverging than in *H. truncata* and narrowly rounded at the tip. — *Adult male* rather like in outer habitus that of *H. neglecta* and *pectinata*, but differing in the fuller development of the oral parts, the structure of the gnathopoda, which nearly agrees with that in the female, by the not-produced last pair of epimeral plates of metasome, and by the outer ramus of the last pair of uropoda being considerably longer than the inner. Colour greyish white, pellucid. Length of adult female scarcely exceeding 4 mm, of male about the same.

Remarks. — The description at first given by Boeck of this species, does not fully correspond with his figures, and it is most probable therefore, that he has confounded it with another species, perhaps the form described above as *H. pectinata.* As however the figures subsequently given in his great work on the northern Amphipoda undoubtedly relate to the present species, the specific name *crenulata* at first proposed ought to be retained for this form. The species may be readily distinguished by the great length of the penultimate pair of pereiopoda, the peculiar shape and armature of the basal joint of the last pair, and by the form of the last pair of epimeral plates of the metasome.

Occurrence. — Off the south and west coast of Norway, this species is by no means rare, occurring, together with *H. neglecta* and *pectinata*, in depths varying from 30 to 100 fathoms. I have also collected it rather abundantly in the Trondhjemsfjord, and Mr. Schneider has found a single specimen in the neighbourhood of Tromso, Finmark.

Distribution. — Kattegat (Meinert); coast of Bohuslän (Stockholm Museum).

12. **Harpinia abyssi,** G. O. Sars.

(Pl. 56, fig. 1),

Harpinia abyssi, G. O. Sars, Crustacea & Pycnog. nov. etc. No. 19.

Syn: Harpinia carinata, G. O. Sars (male).

Body of female rather robust with broadly vaulted back. Cephalon scarcely exceeding in length the 3 anterior segments of mesosome combined, hood evenly convex above and projecting but little beyond the peduncle of the superior antennæ. Coxal plates rather broad, with a great number of marginal setæ; 1st pair considerably expanded distally; 5th pair with the posterior lobe rather deep and nearly transversely truncated at the tip. Metasome provided dorsally with extremely small hairs, only visible by a strong magnifier; last pair of epimeral plates obtusely rounded at the lateral corners, inferior edge setous. First segment of urosome with a hump-like projection dorsally. Superior antennæ with the 1st joint of the peduncle very large, fully twice as long as the other 2 combined, and provided at the end inferiorly with a group of 6 penicillate auditory bristles; flagellum comparatively short, scarcely exceeding half the length of the peduncle, and composed of 7 articulations; accessory appendage somewhat shorter, and 6-articulate. Inferior antennæ scarcely as long as the superior, flagellum 6-articulate. Penultimate joint in both pairs of antennæ densely beset posteriorly with strong plumose setæ. Gnathopoda of moderate size, not very unequal, hand in both oblong oval with the palmar edge very oblique and considerably longer than the hind margin, thumb-like projection nearly obsolete. Penultimate pair of pereiopoda exceeding half the length of the body, propodal joint long and slender; last pair very small, basal joint forming at the end anteriorly a densely setous expansion, posterior edge rounded and provided, in the lower part, with a number of very small crenulations. Last pair of uropoda not very large, both rami tipped by a single seta, the inner much shorter than the basal joint of the outer, the latter with 6 spines exteriorly, its terminal joint extremely small. Lobes of telson very short, rounded at the tip. — *Adult male* much more slender and compressed than the female, metasome and urosome carinated dorsally, the carina forming on the 1st and 3rd segments of urosome a rounded projecting lobe. Peduncle of both pairs of antennæ with dense brushes of sensory hairs, basal joint of the flagellum of the superior ones, as usual, rather expanded and likewise densely hairy. Gnathopoda somewhat more slender than in female, but otherwise of rather similar structure. Basal joint of last pair of pereiopoda more evenly rounded, with the anterior expansion obsolete, and the posterior edge nearly smooth. Last pair of uropoda with the rami somewhat expanded, the outer slightly longer than the inner and provided on the outer edge with a series of 6 small hairs, terminal joint very small and unarmed. Colour greyish white, changing to a rusty yellow. Length of adult female 12 mm, of male about the same.

Remarks. — This is by far the largest of the known species of the genus, and moreover easily distinguishable by the peculiar form of the basal joint of the last pair of pereiopoda. As with other species, the sexual differences are very striking, both as to the outer appearance, and in the structure of some of the limbs, and I was thereby formerly misled to regard the male as belonging to a distinct species. I have however now convinced myself that *H. carinata* is nothing but the adult male of *H. abyssi.*

Occurrence. — Numerous specimens of this pretty species were collected during the Norwegian North Atlantic Expedition in many different Stations, some of which lie close outside the Norwegian coast, for which reason it may perhaps be properly referred to the fauna of Norway. It was however always met with only in considerable depths, varying from 350 to 1215 fathoms.

Distribution. — Outside the great fishing banks from the 63rd to the 75th degree of latitude, and extending westwards to the sea between Iceland and Jan Mayen.

13. **Harpinia lævis**, G. O. Sars, n. sp.

(Pl. 56, fig. 2).

Body rather stout, and quite glabrous throughout the whole dorsal face. Cephalon equalling in length the 4 anterior segments of mesosome combined, hood very slightly convex above, and considerably projecting in front. Anterior pairs of coxal plates rather large, each with only 3 marginal setæ. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, inferior edge quite smooth. First segment of urosome not produced dorsally. Antennæ unusually slender, basal joint of the superior ones less dilated than in most other species, and having only 2 penicillate auditory bristles at the end inferiorly; penultimate joint of the peduncle in both pairs only provided with 4 plumose setæ, flagella rather slender, that of the superior composed of 6 articulations, flagellum of the inferior ones, as also the accessory appendage of the superior, 5-articulate. Gnathopoda of moderate size, the posterior ones somewhat more powerful than the anterior, hand in both pairs oblong oval, with the palmar edge rather oblique, though scarcely exceeding in length the hind margin, thumb-like projection well developed. Penultimate pair of pereiopoda shorter than in most other species and considerably less than half the length of the body; basal joint of last pair rather large, posterior expansion obliquely rounded, so as to reach beyond the meral joint, edge with only a few slight and rounded crenulations. Last pair of uropoda with the inner ramus simple mucroniform, and longer than the basal joint of the outer, the latter with only a single spine exteriorly, terminal joint very narrow, considerably exceeding half the length of the basal one, and tipped by a slender spine. Lobes of telson scarcely diverging, tip narrowly rounded. Colour greyish white, pellucid. Length of adult female 4 mm.

Remarks. — The nearest ally of this species seems to be *H. crenulata* Boeck, from which however it may be easily distinguished by its perfectly smooth and glabrous body, the slender antennæ, the far inferior length of the penultimate pair of pereiopoda, and finally by the form and armature of the basal joint of the last pair.

Occurrence. — I have met with this form in 2 different localities off the coast of Norway, viz., in the Hardangerfjord and in the Trondhjemsfjord. In both localities it occurred rather sparingly in a depth of 50 to 100 fathoms, muddy bottom.

Fam. 5. Ampeliscidæ.

Body compressed, glabrous, more or less strongly curved. Cephalon without any rostral projection, frontal part narrowly truncated. Anterior pairs of coxal plates of moderate size and setous on the distal edge; 1st pair more or less expanded distally; 4th pair the largest and emarginated posteriorly in its upper part, the emargination being bounded beneath by a projecting angle; the 3 posterior pairs comparatively small. Metasome powerfully developed, with large epimeral plates. Urosome short and stout with the 2 outer segments coalesced. Eyes, when present, simple, exhibiting, as a rule, on each side near the front, 2 widely distant corneal lenses, each having inside an irregular patch of pigment. Antennæ very slender and setous, the superior ones, originating from the tip of the cephalon, generally shorter than the inferior, and without any accessory appendage, the inferior ones affixed by a short and thick basal part to the lower side of the cephalon at some distance from the superior. Antennæ in male still more elongated and slender, with rows of short fascicles of sensitive hairs clothing the opposite edges of the peduncles, flagella extremely slender, filiform and nearly naked. Anterior lip short and thick, helmet-shaped; posterior lip quadrilobate, the outer lobes the larger. Mandibles rather strong, with the masticatory part well-developed, cutting edge on each mandible composed of 2 superposed dentated lamellæ, molar expansion large and protruding; between both a dense series of curved spines; palp slender, setous. Maxillæ well-developed, and of normal structure. Maxillipeds having the basal part fringed with long ciliated setæ, masticatory lobe large, and armed on the inner edge with strong laminar spines, palp not very large, densely setous, with the penultimate joint short and thick, terminal joint unguiform. Gnathopoda comparatively feeble in structure and imperfectly subcheliform, the posterior ones, as a rule, more slender than the anterior. The 2 anterior pairs of pereiopoda somewhat unequal in size, meral joint very large and fringed with ciliated setæ more numerous on the 2nd pair, dactylus long and slender. The 2 succeeding pairs recurvate, basal joint large and muscular, carpal joint elongated, and forming at the end posteriorly a projecting corner, dactylus very small, and turned posteriorly. Last pair of pereiopoda very unlike the preceding ones and much shorter, basal joint more or less expanded and forming posteriorly a deflexed lobe fringed with ciliated setæ. Branchial lamellæ transversely plicated; incubatory lamellæ very narrow. Pleopoda well-developed. The 2 anterior pairs of uropoda normal; last pair with both rami uniarticulate, and more or less foliaceous, in male fringed with ciliated setæ. Telson more or less deeply cleft.

Remarks. — This family has been removed by Boeck far from the preceding ones, and was placed by him immediately in front of the *Photidæ*. In doing so he was probably induced by the fact, that some of the forms belonging to the present family are found to construct themselves tubes for dwelling in, as is the case with several of the more sedentary forms, which have been comprised within the division *Domicola* of Sp. Bate. As, however, the divisions *Vagantia* and *Domicola* of the latter author, are now generally rejected by modern authors, since there are many forms among the latter division which do not at all construct tubes, it will be best wholly to abandon this feature as a systematical criterion, and to fix our attention chiefly on the structural affinities. In doing so, we shall certainly find that the family in question more properly keeps the place to which it was originally assigned by Sp. Bate, viz., immediately after the *Pontoporeiidæ* and *Phoxidæ*. In fact, the above described genus *Argissa*, referred by Boeck, without any hesitation, to the *Pontoporeiidæ*, forms a most obvious connecting link between that family and the one here spoken of. Setting aside the latter genus, all the forms comprised in the present family exhibit a very characteristic and easily recognizable appearance, by their smooth, more or less curved body, the peculiarly constructed visual organs, the slender setous antennæ, and the characteristic structure of the pereiopoda. The family comprises, as yet, but 3 genera, all of which are represented in the fauna of Norway.

Gen. 1. **Ampelisca,** Kröyer, 1842.

Syn: Araneops, Costa.
» Pseudophthalmus, Stimpson.
» Tetromatus, Sp. Bate.

Body moderately slender and highly compressed, with smooth and shining surface. Cephalon with the frontal part more or less produced, post-antennal corners obsolete. Anterior pairs of coxal plates rather deep and arranged in such a manner, that the posterior edge of each overlaps the anterior edge of the succeeding one; 1st pair scarcely deeper than the others, but more or less expanded distally, and generally (but not always) quite concealing the basal part of the inferior antennæ, as also the oral parts; 4th pair obliquely truncated below the posterior angle. Eyes, when present, 2 on either side, each generally exhibiting a well-marked circular corneal lens. Antennæ very slender, their mutual length different in the different species. Mandibles with the body very short, palp of moderate length, and having the 2nd joint laminarly dilated, the last very narrow and linear. First pair of maxillæ with the masticatory lobe transversely truncated and armed with strong spines, basal lobe comparatively small, and without distinct marginal setæ, palp well-developed, with the terminal joint gradually expanded distally, and armed at the tip with several strong teeth. Second pair of maxillæ with the outer lobe larger than the inner, both densely setous at the tip. Maxillipeds with the basal lobe oval, obliquely rounded at the tip, masticatory lobe oblong, and reaching about to the end of the antepenultimate joint of the palp, penultimate joint of the latter nearly club-shaped and scarcely half as long as the antepenultimate one. Anterior gnathopoda, as a rule, shorter and stouter than the posterior ones, with the propodos more or less dilated in the middle, that of the posterior pair generally very narrow and attenuated distally. The 2 anterior pairs of pereiopoda with the carpal joint extremely short, dactylus long and narrow. The 2 succeeding pairs with the basal joint very broad, its anterior edge strongly curved in the middle, carpal joint, with a single series of small denticles on the outer side, somewhat within the posterior edge. Last pair of pereiopoda with the basal joint obliquely expanded, posterior lobe short and broad, with a dense series of ciliated setæ on the terminal edge; propodal joint more or less foliaceous, dactylus lanceolate. Last pair of uropoda rather large, reaching considerably beyond the preceding pairs, rami more or less foliaceous, the inner broader than the outer. Telson oblong and cleft nearly to the base, the incision very narrow, fissure-like.

Remarks. — The present genus was established by Kröyer as early as 1842, and the name, proposed by that author, has therefore evidently the precedence of those given by Costa, Stimpson and Sp. Bate. The species upon which the genus was originally founded, is that described below as *A. Eschrichtii.* Subsequently, the same author described another species as *A. Gaimardii*, but that species was justly separated by Boeck, as the type of a distinct genus, *Byblis.* In their general habitus the species of the present genus exhibit a very uniform appearance, and can, therefore, only by a closer examination, be distinguished from each other. The most easily recognizable distinguishing marks are afforded by the form of the cephalon and that of the last pair of epimeral plates of metasome, furthermore by the shape of the dorsal carina of the first segment of urosome, the mutual longitudinal relation of the antennæ, and finally by the structure of the last pair of pereiopoda. The sexual differences are often very pronounced, and make the specific distinction still more difficult. We are acquainted with numerous species of this genus, derived from different tracts of the Oceans, but in the Northern Seas, the genus would seem to be especially abundantly represented. Most of the species are true deep-water forms, and some of them descend to the greatest depths explored. Off the coast of Norway, occur no less than 13 species, to be described in the sequel.

1. **Ampelisca typica,** Sp. Bate.

(Pl. 57).

Tetromatus typicus, Sp. Bate, Brit. Assoc. Report 1855, p. 58.

Syn: Ampelisca carinata, Bruzelius?

» Ampelisca Gaimardii, Sp Bate (not Kröyer).

Cephalon about the length of the 3 anterior segments of mesosome combined, gradually tapering distally, and having the tip nearly transversely truncated. Anterior pairs of coxal plates about twice as deep as the corresponding segments; 1st pair but little expanded distally; 4th pair more deep than broad, lower edge nearly transversely truncated, and shorter than the hind margin below the posterior angle. Last pair of epimeral plates of metasome right-angled, lateral corners not produced. First segment of urosome deeply impressed at the base dorsally, especially in the male, and exhibiting, behind the depression, a rather high carina, terminating in a projecting angle. Corneal lenses distinct, the inferior pair placed close to the lower edge of the cephalon at a short distance from the inferior corners of the front, underlying pigment well defined, red with a chalky-white coating. Superior antennæ in female very small, scarcely longer than the cephalon and the 1st segment of mesosome combined, and much shorter than the peduncle of the inferior ones, 1st joint of the peduncle short and thick, 2nd very slender, nearly 3 times as long as the 3rd, flagellum a little longer than the peduncle and composed of about 7 articulations; those in male considerably longer, and reaching beyond the peduncle of the inferior ones. The latter in female not very elongated, scarcely exceeding half the length of the body, the 2 last joints of the peduncle nearly equal-sized; those of male about the length of the body. Anterior gnathopoda not very strong, propodos a little shorter than the carpus, and oblong oval in form; posterior ones very slender, with the propodos sublinear and not attaining half the length of the carpus. Dactylus of the anterior pairs of pereiopoda extremely slender, exceeding in length the 2 preceding joints combined. Last pair of pereiopoda with the basal joint longer than the remaining part of the leg, posterior expansion obliquely truncated at the tip, and reaching beyond the ischial joint, the latter rather stout, with a transverse series of spinules at the end anteriorly, meral joint very small, and strongly constricted at the base, propodal joint scarcely longer than the 2 preceding joints combined, dactylus of about same length as the propodos. Last pair of uropoda with the rami about twice as long as the basal part, in female only fringed with short simple bristles, in male provided on their opposite edges with finely ciliated setæ. Telson about twice as long as broad, tip blunted, each of the terminal lobes having a row of dorsal denticles, and besides, in female, about 5 marginal spinules in their outer half. Body whitish, pellucid, with orange-coloured intestine shining through the integuments, the latter mottled with light yellowish and a few reddish patches; ova in the marsupial pouch rose-coloured. Length of adult female 10 mm, of male about the same.

Remarks. — There cannot, I believe, be any doubt, that the above described species is that originally characterised by Sp. Bate as *Tetromatus typicus*, and subsequently, by the same author, erroneously identified with *Ampelisca Gaimardii* of Kröyer. The specimen figured by Sp. Bate, is unquestionably a male, and some of the characteristics assigned to this species are therefore merely of sexual nature. Whether the form named by Bruzelius as *A. carinata* is the male of this or the succeeding species, would seem to be somewhat questionable. Indeed, Boeck seems, under the name *A. typica*, to have confounded male specimens of both species. The form under question may be easily known from its nearest ally, *A. tenuicornis*, by the comparatively short inferior antennæ in the female, and by the form of the dorsal carina of the 1st segment of urosome, as also by the nearly transversely truncated frontal part of the cephalon.

Occurrence. — Though nowhere in any great abundance, I have met with this species in several localities, both off the south and west coast of

Norway, up to the Trondhjemsfjord, in depths varying from 20 to 60 fathoms.

Distribution. — British Isles, Kattegat, Bohuslän (Stockholm Museum).

2. **Ampelisca tenuicornis,** Lilljeborg.

(Pl. 58, fig. 1).

Ampelisca tenuicornis, Lilljeborg, Öfvers. af Vet. Akad. Förhandl. 1855, p. 123.

Syn: Ampelisca lævigata, Sp. Bate (not Lilljeborg).

Cephalon slightly exceeding the length of the 3 anterior segments of mesosome combined, frontal part strongly curved anteriorly and obliquely truncated at the tip. First pair of coxal plates rather expanded in their outer part, with the anterior edge strongly curved; 4th pair scarcely more deep than broad, lower edge oblique, and longer than the hind margin. Last pair of epimeral plates of metasome rectangular, lateral corners in female sharpened, in male more obtuse. First segment of urosome in female but slightly impressed at the base dorsally, and having behind the depression only a very low and scarcely projecting keel; that of male with a deep transverse depression, behind which is a distinct though rounded carina. Corneal lenses about as in the preceding species, underlying pigment of somewhat irregular form, and bright red. Superior antennæ in female about the length of the cephalon and the first 2 segments of mesosome combined, and reaching a little beyond the middle of the last peduncular joint of the inferior ones, 2nd joint of the peduncle about twice the length of the last one, flagellum nearly twice as long as the peduncle, and composed of about 11 articulations. Inferior antennæ very elongated and slender, nearly attaining the length of the body, flagellum clothed posteriorly with fascicles of slender bristles. Antennæ in male about as in the preceding species. Anterior gnathopoda somewhat stronger than in that species, propodos having the inferior edge considerably bulging out above the middle. Posterior gnathopoda slender, with the propodos sublinear, and exceeding half the length of the carpus. Dactylus of the anterior pairs of pereiopoda about equalling in length the 2 preceding joints combined. Last pair of pereiopoda with the basal joint scarcely longer than the remaining part of the leg, posterior expansion nearly transversely truncated at the tip, and not reaching beyond the ischial joint, the latter about as in the preceding species, propodal joint, on the other hand, considerably larger, exceeding the length of the 2 preceding joints combined, dactylus comparatively short. Last pair of uropoda with the rami scarcely twice as long as the basal part and having in female a smaller number of marginal bristles than in *A. typica.* Telson comparatively narrower than in that species and slightly constricted near the base, terminal lobes without any dorsal denticles, but each with 3 small marginal spinules near the tip. Body whitish, pellucid, and having anteriorly on the sides of the 1st pair of coxal plates a most conspicuous carmine-coloured patch, and a few light yellowish specks. Length of adult female scarcely exceeding 8mm, of male about the same.

Remarks. — Though very nearly allied to the preceding species, this form may, on closer examination, be readily distinguished by the very slender and elongated inferior antennæ, by the form of the cephalon, and by the very slight and rounded dorsal carina on the 1st segment of the urosome. The males of both species are rather similar, though, on closer inspection, easily distinguishable by the different form of the dorsal carina of the 1st segment of the urosome. Boeck has erroneously identified this species with the *Araneops diadema* of Costa. I have been enabled to examine the latter form, which was collected by me, many years ago, in the gulf of Naples, and have convinced myself that it is specifically distinct and more nearly allied to the following species. On the other hand, Boeck was certainly right in referring the *A. lævigata* of Sp. Bate to this species.

Occurrence. — This is by far the commonest of the Norwegian species of Ampelisca, occurring in great abundance along the whole south and west coasts of Norway, at least to the Trondhjemsfjord, in depths varying from 30 to 100 fathoms, muddy bottom.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), Bohuslän (Bruzelius).

3. **Ampelisca assimilis**, Boeck.

(Pl. 58, fig. 2).

Ampelisca assimilis, Boeck, Crust. amphip. bor. & arctica, p. 142.

Cephalon a little exceeding in length the 3 anterior segments of mesosome combined, gradually tapering distally, frontal part rather produced and less curved anteriorly than in *A. tenuicornis*, tip somewhat obliquely truncated. First pair of coxal plates but slightly expanded distally; 4th pair much more deep than broad, lower edge transversely truncated, and shorter than the hind margin. Last pair of epimeral plates of metasome obtusely rounded at the lateral corners. First segment of urosome with a deep saddle-shaped depression in the middle dorsally, behind which there is a rather high and evenly rounded carina. Eyes about as in A. tenuicornis. Superior antennæ in female about the length of the cephalon and the 3 anterior segments of mesosome combined, and reaching a little beyond the peduncle of the inferior ones, 2nd joint of the peduncle scarcely twice the length of the 3rd, flagellum more than twice as long as the peduncle, and composed of about 15 articulations. Inferior antennæ somewhat shorter than in *A. tenuicornis*, the 2 last joints of the peduncle equal-sized. Gnathopoda nearly exactly as in the last-named species. Dactylus of the anterior pairs of pereiopoda longer than the 2 preceding joints combined. Last pair of pereiopoda with the basal joint about the length of the remaining part of the leg, posterior expansion obliquely rounded at the tip, and not reaching beyond the ischial joint, the latter about as in the 2 preceding species, propodal joint oblong oval, and exceeding the length of the 2 preceding joints combined, dactylus somewhat shorter. Last pair of uropoda about as in *A. tenuicornis*. Telson somewhat less elongated, without any dorsal denticles, but with from 4 to 5 marginal spinules on each side. Colour not yet stated. Length of adult female 10 mm.

Remarks. — This species is nearly allied to *A. tenuicornis*, from which it may, however, be readily distinguished by the somewhat more produced cephalon, the greater length of the superior antennæ, and by the obtusely rounded last pair of epimeral plates of metasome, finally, by the comparatively high and evenly rounded dorsal carina, on the 1st segment of urosome.

Occurrence. — I have met with this species in a few places off the south and west coasts of Norway, in company with *A. tenuicornis*. Boeck collected it at Haugesund, west coast of Norway, where I also have found it.

Distribution. — Bohuslän (Stockholm Museum).

4. **Ampelisca lævigata**, Lilljeborg.

(Pl. 59, fig. 1).

Ampelisca lævigata, Lilljeborg, Öfvers. af Kgl. Vet, Akad. Förhandl. 1855, p. 123.
Syn: Araneops brevicornis, Costa.
» Tetromatus bellianus, Sp. Bate.

Cephalon nearly as long as the 3 anterior segments of mesosome combined, frontal part somewhat curved downwards, and transversely truncated at the tip, lower corner rather projecting. First pair of coxal plates obliquely expanded distally; 4th pair much more deep than broad, lower edge straight, and considerably shorter than the hind margin. Last pair of epimeral plates of metasome produced at the lateral corners to a strong spiniform projection, posterior edge deeply bi-sinuated, with a rounded projecting lobe in the middle. First segment of urosome having at the end dorsally a small hump-shaped projection. Corneal lenses small, but distinct, the lower pair occupying the inferior corners of the front; underlying pigment dark brownish. Superior antennæ in female extremely small, scarcely longer than the cephalon, and not reaching beyond the penultimate peduncular joint of the inferior ones, flagellum not twice as long as the peduncle, and composed of about 10 articulations; those in male somewhat more elongated, though scarcely reaching beyond the peduncle of the inferior ones. The latter in female hardly more than half the length of the body, penultimate joint of the peduncle much longer than the last one. Anterior gnathopoda not very strong, propodos oblong oval, and but slightly dilated near the base; that of the posterior ones about half the length of the carpus, and less narrow than in the preceding species. Anterior pairs of pereiopoda with the meral joint rather broad, and forming at the end anteriorly a rounded projecting lobe more distinct on the 1st pair, dactylus very slender, and considerably exceeding in length the 2 preceding joints combined. Last pair of pereiopoda rather robust, basal joint shorter than the remaining part of the leg, and having the posterior expansion nearly transversely truncated at the tip, outer joints unusually broad, meral one forming posteriorly a deflexed lobe fringed with numerous ciliated setæ, carpal joint triangular, angularly produced anteriorly, propodal joint very large, fully as long as the 3 preceding joints combined, and oblong oval in form, dactylus half its length, and narrowly lanceolate. Last pair of uropoda with both rami rather broad, foliaceous, and fringed on their opposite edges with ciliated setæ. Telson rather large, about twice as long as it is broad, slightly constricted near the base, the outer part triangularly tapering, and having on each side a row of small bristles somewhat within the edge dorsally. Body whitish, pellucid, mottled with scattered stellate pigmentary spots of a dark brownish colour, cephalon and the anterior pairs of legs partly speckled with light-yellow. Length of adult female 12mm, of male about the same.

Remarks. — This is an easily recognizable species, chiefly characterised by the peculiar form of the cephalon, the deeply bisinuated last pair of epimeral plates of metasome, and by the structure of the last pair of pereiopoda. Also the coloration of the body is rather characteristic. The *Araneops brevicornis* Costa, of which I have collected a few specimens in the gulf of Naples, is unquestionably this species, and not, as believed by Boeck, *A. macrocephala.* Likewise, there cannot be any doubt that the *Ampelisca* (Tetromatus) *belliana* of Sp. Bate is the same species.

Occurrence. — Off the south and west coast of Norway this species is by no means rare, occurring, as a rule, on sandy bottom, in depths varying from 20 to 60 fathoms. It extends northwards to Gröto and Slaatholmen (Lofoten Isles), where it was collected by Dr. Danielssen.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux), Mediterranean (Costa), Kattegat (Meinert), Bohuslän (Bruzelius).

5. **Ampelisca gibba**, G. O. Sars.

(Pl. 59, fig. 2).

Ampelisca gibba, G. O. Sars, Oversigt af Norges Crustaceer, I. p. 107, Pl. 6, fig, 1.

Cephalon about the length of the 3 anterior segments of mesosome combined, evenly tapering distally, and narrowly truncated at the tip, lower corner but little projecting. First pair of coxal plates gradually widening below, terminal edge nearly transversely truncated; 4th pair somewhat narrower than in *A. lævigata*. Last pair of epimeral plates of metasome produced at the lateral corners to an acute projection, posterior edge slightly arcuate in the middle. First segment of urosome exhibiting, at the end dorsally, a very conspicuous hump-like compressed projection, which in the male is still more prominent, and nearly erect. Corneal lenses distinct, the lower pair placed a little behind the inferior corners of the front; underlying pigment well-defined, and bright red. Superior antennæ in female rather small, scarcely reaching beyond the penultimate peduncular joint of the inferior ones, 2nd joint of the peduncle much more elongated and slender than in *A. lævigata*, flagellum about the length of the peduncle, and composed of only 6 articulations; those in male somewhat longer, though scarcely reaching beyond the middle of the last peduncular joint of the inferior ones. The latter in female not quite as long as the body, and extremely slender, the 2 outer joints of the peduncle narrow and elongated, the last one a little shorter than the penultimate. Both pairs of gnathopoda slender and feeble, especially the posterior ones. Anterior pairs of pereiopoda with the meral joint far less expanded than in *A. lævigata*, dactylus long and narrow. Last pair of pereiopoda with the basal joint about equalling in length the remaining part of the leg, posterior expansion obtusely truncated at the tip, outer part of the leg somewhat resembling that of *A. lævigata*, but with the deflexed lobe of the meral joint considerably smaller, and bearing only 3 setæ at the tip. Last pair of uropoda with the rami much narrower, and nearly naked. Telson in female rather short and broad, nearly obcordate in form, and somewhat dilated in the middle, outer part triangularly tapering, with a double series of about 5 bristles somewhat within the edges dorsally; that in male considerably narrower. Body highly pellucid, and nearly colourless, except for a few small yellowish speckles in the anterior part; ova in the marsupial pouch of a beautiful orange-colour. Length of adult female 8 mm, of male 7 mm.

Remarks. — This species is nearly allied to *A. lævigata*, though easily distinguishable, not only by its much smaller size, but also by the rather different form of the cephalon, and by the very conspicuous hump-like dorsal projection of the 1st segment of urosome.

Occurrence. — I have met with this form rather abundantly in several places, both off the south and west coasts of Norway, and northwards to the Trondhjemsfjord. It is a more pronounced deep-water species than *A. lævigata*, occurring only in depths varying from 50 to 150 fathoms, muddy bottom. Out of Norway, it has not yet been recorded.

6. **Ampelisca macrocephala**, Lilljeborg.

(Pl. 60, fig. 1).

Ampelisca macrocephala, Lilljeborg, Öfvers. af Kgl. Vet. Akad. Förhandl. 1852, p. 7.

Cephalon fully as long as the 3 anterior segments of mesosome combined, and gradually tapering anteriorly, frontal part rather produced, and obliquely truncated at the tip. First pair of coxal plates but slightly expanded distally, and scarcely broader than the 2 succeeding ones; 4th pair much more deep than broad, with the lower edge considerably shorter than the hind margin. Last pair of epimeral plates of metasome produced at the lateral corners to a strong spiniform projection, posterior edge forming a rounded lobe in the middle. First segment of urosome having dorsally a slight transverse depression, more distinct in the male, and behind it a low carina terminating with a slightly projecting angle. Corneal lenses very small, though distinct, the lower pair occupying the inferior corners of the front; underlying pigment somewhat irregular in form and bright red. Superior antennæ in female about the length of the cephalon and the 2 anterior segments of mesosome combined, and reaching to the end of the peduncle of the inferior ones, flagellum twice the length of the peduncle, and composed of about 12 articulations; those in male, as usual, more elongated and slender, reaching considerably beyond the peduncle of the inferior ones. The latter in female scarcely exceeding half the length of the body, last joint of the peduncle shorter than the penultimate one. Gnathopoda rather slender and feeble, propodos of the anterior ones about the length of the carpus, and very slightly dilated in its outer part, that of the posterior ones very narrow, and scarcely half as long as the carpus. Dactylus of the anterior pairs of pereiopoda about the length of the 2 preceding joints combined. Last pair of pereiopoda with the basal joint about equalling in length the remaining part of the leg, posterior expansion rather broad, and transversely truncated at the tip, ischial joint short, meral joint forming at the end posteriorly a rather small, deflexed lobe, fringed with delicate setæ, carpal joint heart-shaped, with 3 long ciliated setæ originating from the posterior corner, propodal joint oblong, tapering distally, and scarcely longer than the 2 preceding joints combined, dactylus about half its length. Last pair of uropoda with the rami broadly lanceolate, and about twice as long as the basal part; penultimate pair with the outer ramus somewhat shorter than the inner, and armed, near the tip, with a very long and slender spine. Telson oblong oval, about twice as long as it is broad, with 4 pairs of dorsal denticles, and a single pair of apical spinules, tip blunted. Body whitish, pellucid, mottled on the sides with pinkish and yellowish specks. Length of adult female 14 mm, of male somewhat less.

Remarks. — In its general appearance, this species bears some resemblance to the above-described *A. assimilis*, though being, perhaps, a little more slender in form. On closer examination, it is however easily distinguished by the rather different structure of the last pair of pereiopoda, as also by the form of the last pair of epimeral plates of metasome, finally, by the very slight dorsal carina of the 1st segment of urosome.

Occurrence. — The species occurs along the whole coast of Norway, from the Christianiafjord to Vadso, in moderate depths, but seems to be most abundant in the arctic region.

Distribution. — Arctic Ocean: Greenland, Labrador, east coast of North America, Iceland, Spitsbergen, the Kara Sea; British Isles, Kattegat, Bohuslän.

7. **Ampelisca spinipes**, Boeck.

(Pl. 60, fig. 2).

Ampelisca spinipes, Boeck, Crust. amphip. bor. & arctica, p. 143.

Cephalon about the length of the 3 anterior segments of mesosome combined, slightly tapering anteriorly, tip nearly transversely truncated, with the lower corner somewhat less projecting than the upper. First pair of coxal plates obliquely expanded distally, and rather broad in their outer part; 4th pair nearly as broad as they are deep, inferior edge somewhat oblique, and about the length of the hind margin. Metasome slightly carinated dorsally; last pair of epimeral plates not produced at the lateral corners, and nearly right-angled. First segment of urosome deeply impressed at the base dorsally, especially in the male, and exhibiting, behind the depression, a rather high and conspicuous, rounded carina. Corneal lenses small, but distinct, the lower pair somewhat remote from the inferior corner of the front, underlying pigment somewhat irregular in form, reddish, partly coated with chalky white. Superior antennæ in female much larger than in any of the preceding species, and nearly half as long as the body, 1st joint of the peduncle rather strong, 2nd, as usual, much more slender and elongated, flagellum about 3 times longer than the peduncle, and composed of about 32 articulations provided posteriorly with fascicles of slender setæ; those in male still more elongated, with the flagellum extremely slender, and only provided with very small hairs. Inferior antennæ in female half as long again as the superior ones, the 2 outer joints of the peduncle not very elongated and nearly equal-sized; those in male fully attaining the length of the whole body. Anterior gnathopoda considerably stronger than the posterior ones, propodos shorter than the carpus, oblong oval, and somewhat dilated in its proximal part. Posterior gnathopoda extremely slender, propodos linear, and somewhat exceeding half the length of the carpus. Anterior pairs of pereiopoda about as in *A. macrocephala;* the 2 succeeding pairs with the outer joints rather richly armed with spines. Last pair of pereiopoda very similar in structure to those in *A. typica*, though the basal joint appears comparatively a little smaller, and the dactylus shorter. Last pair of uropoda likewise of much the same structure as in that species. Telson very narrow and nearly smooth, excepting for 3 small marginal spinules near the tip of each terminal lobe. Body semipellucid, light yellowish, with orange-coloured shadows and specks, outer peduncular joints of the antennæ tinged at their tip with light reddish colour. Length of adult female 15 mm, of male somewhat less.

Remarks. — This pretty form, one of the largest of the indigenous Ampeliscæ *), may be easily recognized from any of the preceding species by the much fuller development of the superior antennæ. From the succeeding species it is moreover readily distinguished by the structure of the last pair of pereiopoda, and by the form of the last pair of epimeral plates of metasome.

Occurrence. — Though nowhere in any abundance, I have met with this species in several localities, both off the south and west coasts of Norway, and northwards to the Lofoten Isles (Røst), in depths, varying from 30 to 100 fathoms.

Distribution. — Coast of France (Chevreux), Kattegat (Meinert), Bohuslän (Stockholm Museum).

8. **Ampelisca Eschrichtii**, Kröyer.

(Pl. 61, fig. 1).

Ampelisca Eschrichtii, Kröyer, Nat. Tidsskr. 1 R. Bd. IV, p. 155.

Syn: Ampelisca ingens, Stimpson.
» Ampelisca dubia, Boeck (young).
» Ampelisca propinqva, Boeck (somewhat older).

Cephalon scarcely attaining the length of the 3 anterior segments of mesosome combined, frontal part gradually tapering, and transversely truncated at the tip. First pair of coxal plates but slightly expanded distally, and

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*) Boeck states the length to be 30 mm, but this is certainly incorrect, and may most probably be due to a misprint.

scarcely broader than the 2 succeeding pairs; 4th pair much more deep than broad, lower edge shorter than the hind margin. Metasome and the posterior part of mesosome distinctly keeled dorsally. Last pair of epimeral plates of metasome produced at the lateral corners to a spiniform projection, posterior edge evenly convex in the middle. First segment of urosome with a very slight dorsal carina. Corneal lenses distinct, the lower pair placed within a small sinus of the inferior edges of the cephalon, at a short distance from the lower corners of the front; underlying pigment well-defined and bright red. Superior antennæ in female about 3 times the length of the cephalon, and considerably projecting beyond the peduncle of the inferior ones, flagellum 2 and a half times as long as the peduncle, and composed of about 30 articulations clothed posteriorly with fascicles of slender setæ. Inferior antennæ twice the length of the superior, with the 2 outer joints of the peduncle nearly equal-sized. Both pairs of gnathopoda rather slender, but especially the posterior ones; propodos in the former a little shorter than the carpus, and oblong oval in form; in the latter about half as long as the carpus, and sublinear. Dactylus of the anterior pairs of pereiopoda very slender and considerably exceeding in length the 2 preceding joints combined. The 2 succeeding pairs, with the propodal joint produced beyond the short recurved dactylus, to a compressed setiferous lobe. Last pair of pereiopoda with the basal joint considerably exceeding in length the remaining part of the leg, posterior expansion somewhat irregular in form, obliquely truncated, and strongly rounded at the inferior corner, which reaches almost to the end of the meral joint; carpal joint rather broad, nearly heart-shaped, and considerably projecting anteriorly, propodal joint very narrow, and shorter than the 2 preceding joints combined, dactylus narrowly lanceolate, and exceeding half its length. Last pair of uropoda with the rami lanceolate, twice as long as the basal part, and fringed with ciliated bristles, besides a few spinules. Telson oblong and quite naked, excepting for a small apical denticle on each side. Body semipellucid, with a faint yellowish tinge, and mottled with orange and pinkish pigment. Length of adult female reaching 25 mm.

Remarks. — This is the first described species of the genus, and is readily recognized from most other species, not only by its large size, but also by several other well-marked characteristics, thus by the distinctly keeled posterior part of the body, by the form of the cephalon and the last pair of epimeral plates of metasome; furthermore, by the mutual length of the antennæ, and by the structure of the last pair of pereiopoda. The *Ampelisca ingens* of Stimpson, as described by Sp. Bate, would seem to be this species, at least to judge from its large size. The two imperfectly described species, named by Boeck as *A. dubia* and *propinqva*, must be cancelled, as I have found, on examining his type specimens, that both are founded only upon young specimens of the present species.

Occurrence. — The species would seem to be a genuine arctic form, occurring rather plentifully off the whole coast of Nordland and Finmark, in moderate depths, but also occasionally extending southwards along the west coast of Norway, at least to Bergen.

Distribution. — Arctic Ocean, widely distributed: Greenland, Labrador, Iceland, Spitsbergen, the Murman Coast, the Kara Sea, the Siberian Polar Sea; east coast of North America (Stimpson), ? Bohuslän (Lilljeborg).

9. **Ampelisca odontoplax.** G. O. Sars.

(Pl. 61, fig. 2).

Ampelisca odontoplax, G. O. Sars, Crust. & Pygnog. nova etc. No. 31.

Cephalon exceeding in length the 3 anterior segments of mesosome combined, distinctly keeled dorsally, and but slightly tapering distally, tip transversely truncated, and emarginated in the middle. The 3 anterior pairs of coxal plates rather narrow, and turned obliquely forwards, each with a very distinct dentiform projection at the infero-posteal corner; 1st pair but very slightly expanded distally, and scarcely broader than the 2 succeeding pairs; 4th pair fully as broad as it is deep, inferior and posterior edges forming an even uninterrupted curve. Metasome distinctly keeled dorsally, last pair of epimeral plates produced at the lateral corners to a rather short dentiform projection. First segment of urosome with a slight dorsal carina terminating with a sharp corner. Eyes wholly absent. Superior antennæ of female about half the length of the body, 1st joint of the peduncle rather large, 2nd twice its length, and much more slender, flagellum scarcely twice the length of the peduncle, and composed of about 32 articulations. Inferior antennæ not quite twice as long as the superior, last joint of the peduncle shorter than the penultimate one. Gnathopoda nearly as in *A. Erchrichtii.* Dactylus of the anterior pairs of pereiopoda very slender, and considerably exceeding the length of the 2 preceding joints combined. Last pair of pereiopoda rather strong, basal joint very broad, but scarcely as long as the remaining part of the leg, posterior expansion nearly transversely truncated at the tip; the 3 succeeding joints about as in *A. Erchrichtii*, propodal joint, on the other hand, considerably larger, oblong in form, and exceeding in length the 2 preceding joints combined, dactylus about half its length, and narrowly lanceolate. Last pair of uropoda about as in *A. Eschrichtii;* penultimate pair with both rami densely spinous on the inner edge, the outer spine in each much longer than the others. Telson oblong oval, with 2 pairs of dorsal denticles, tip of the terminal lobes somewhat emarginated, and bearing a single apical spinule. Body whitish, pellucid, without any distinct pigmentation. Length of adult female 18 mm.

Remarks. — From all the species previously described, this form is easily distinguished by the absolute want of eyes, moreover by the dorsally carinated cephalon, and the distinct dentiform projection of the anterior pairs of coxal plates. It is, next *A. Eschrichtii*, the largest of the indigenous Ampeliscæ.

Occurrence. — Of this form, 2 specimens were collected during the Norwegian North Atlantic Expedition, outside the coast of Helgeland (Stat. 147), in a depth of 142 fathoms. A few much smaller specimens I found subsequently at Hasvig, west coast of Finmark, in about the same depth, and another specimen was collected by the author, some years ago, in the outer part of the Trondhjemsfjord, at Bejan. It thus appears to be a true Norwegian species. Out of Norway, it has not yet been recorded.

10. **Ampelisca æqvicornis**, Bruzelius.

(Pl. 62, fig. 1).

Ampelisca æqvicornis, Bruzelius, Kgl. Vet. Akad. Handl. III, p. 82, Pl. 4, fig. 15.

Body rather stout, with the back rounded, not carinated. Cephalon shorter than the 3 anterior segments of mesosome combined, and but slightly tapering distally, front nearly transversely truncated, though the superior corner is somewhat more projecting than the inferior. Anterior pairs of coxal plates without any dentiform projection; 1st pair gradually widening below, and considerably broader than the 2 succeeding pairs; 4th pair somewhat deeper than it is broad, inferior edge about the length of the hind margin, both defined from each other by an obtuse angle. Last pair of epimeral plates of metasome rectangular. First segment of urosome with a very slight dorsal carina, terminating with a somewhat projecting corner. Corneal lenses distinct, though rather small, the lower pair placed at some distance from the inferior corners of the front, close to the lower edge; underlying pigment well-defined, reddish. Antennæ in female nearly equal in length, or the inferior very little longer, about equalling half the length of the body, 2nd peduncular joint of the superior ones rather elongated, last peduncular joint of the inferior ones a little longer than the penultimate one, flagellum in both pairs composed of about 24 joints provided posteriorly with fascicles of slender setæ. Gnathopoda of the usual structure, the anterior ones somewhat stronger than the posterior. Dactylus of the anterior pairs of pereiopoda scarcely attaining the length of the 2 preceding joints combined. The 2 succeeding pairs unusually short, with the basal joint greatly expanded, that of the penultimate pair considerably greater in breadth than in length, and having the anterior edge angularly bent in the middle. Last pair of pereiopoda with the basal joint exceeding in length the remaining part of the leg, posterior expansion rather broad and obtusely truncated at the tip, ischial joint comparatively large and stout, propodal joint shorter than the 2 preceding joints combined, and oblong in form, dactylus broadly lanceolate, and exceeding its half length. Last pair of uropoda with the rami scarcely twice as long as the basal part, and only fringed with simple spiniform bristles. Telson oblong, about twice as long as it is broad, slightly tapering in its outer part, with 2 pairs of dorsal denticles, tip blunted. Colour not yet stated. Length of adult female 11 mm.

Remarks. — The present species, at first detected by Bruzelius on the Bohuslän coast, is chiefly distinguished from those previously described, by the nearly equal-sized antennæ, a characteristic which gave rise to the specific name. It is, moreover, characterised by the unusually short and robust form of the antepenultimate and penultimate pairs of pereiopoda, as also by the less produced frontal part of the cephalon.

Occurrence. — The species would seem to occur along the whole south and west coasts of Norway, and northwards up to the Lofoten Isles, in depths varying from 50 to 200 fathoms. In some places, it may be found in great abundance, thus in the Christianiafjord at Drobak, from which locality Prof. Lovén, long ago, brought home a vast number of specimens.

Distribution. — British Isles (Norman), Shetland Isles (the same author), Bohuslän (Bruzelius).

11. **Ampelisca anomala**, G. O. Sars.

(Pl. 62, fig. 2).

Ampelisca anomala, G. O. Sars, Oversigt af Norges Crustaceer I, p. 108, Pl. 6, fig. 2.

Cephalon about the length of the 3 anterior segments of mesosome combined, frontal part gradually tapering distally, with the tip transversely truncated and rather deeply emarginated in the middle, inferior corner acutely produced. First pair of coxal plates rather expanded distally, and obliquely rounded at the tip, without, however, as in most other species, concealing the basal part of the inferior antennæ; 4th pair nearly as broad as deep, with the inferior edge longer than the posterior. Last pair of epimeral plates of metasome rectangular. First segment of urosome having dorsally a distinct carina terminating in a sharp corner. Corneal lenses unusually large, though less refractive than in most other species, the lower pair placed on the sides of the cephalon at some distance both from the inferior edge, and the lower corner of the front; ocular pigment well-defined, reddish. Antennæ in female very elongated, bearing posteriorly fascicles of slender setæ, the superior ones considerably exceeding half the length of the body, 2nd joint of the peduncle long and slender, flagellum two and a half times as long as the peduncle, and composed of about 30 articulations. Inferior antennæ half as long again as the superior, and scarcely shorter than the body, last joint of the peduncle a little longer than the penultimate one. Gnathopoda less dissimilar than usual, the posterior ones being but little more slender than the anterior, propodos in both slightly shorter than the carpus. Dactylus of the anterior pairs of pereiopoda very slender, and considerably exceeding the length of the 2 preceding joints combined. The 2 succeeding pairs with the outer part much more elongated than in *A. æqvicornis.* Last pair of pereiopoda with the basal joint exceeding in length the remaining part of the leg, posterior expansion obliquely rounded; outer part of the leg about as in *A. æqvicornis*, except that the propodal joint is somewhat larger. Last pair of uropoda with the rami about twice as long as the basal part, and only provided with a few simple hairs. Telson oval in form, scarcely twice as long as it is broad, without any dorsal denticles, but with a single apical spinule on each of the terminal lobes. Body highly pellucid, and nearly colourless. Length of adult female scarcely exceeding 7 mm.

Remarks. — The specific name *anomala* assigned to this species, refers chiefly to the fact, that the basal part of the inferior antennæ is not, as usual, concealed by the 1st pair of coxal plates, but projects, as in the genus *Byblis*, freely beyond their edges, a characteristic which was indeed recorded by Boeck, as a distinguishing mark between the latter genus and that of Ampelisca. The same thing is, however, also observed in the 2 new species to be next described. The present form is, moreover, easily recognized from the previously described species by the unusually large corneal lenses, and by the extremely elongated and slender antennæ.

Occurrence. — It would seem, on the whole, to be a very rare species. I first detected it at Korshavn, west coast of Norway, and have subsequently found it in 2 other places, viz., in the Hardangerfjord at Sunde, and in the outer part of the Christianiafjord off Hvalør. In all 3 places it occurred at a very considerable depth, from 100 to 200 fathoms.

Distribution. — Off Cape Finisterre (Expedition of Hirondelle).

12. **Ampelisca amblyops**, G. O. Sars, n. sp.

(Pl. 63, fig. 1).

Cephalon comparatively short, not attaining the length of the 3 anterior segments of mesosome combined, frontal part but slightly tapering and deeply emarginated at the tip, the lower corner rather projecting. First pair of coxal plates obliquely expanded distally, and, as in the preceding species, not concealing the basal part of the inferior antennæ; 4th pair much greater in depth than in breadth, inferior and posterior edges nearly of equal length and defined by an obtuse angle. Last pair of epimeral plates of metasome slightly produced at the lateral corners. First segment of urosome having a rather conspicuous dorsal carina terminating in a projecting corner, blunted at the tip. Corneal lenses wholly wanting, but 2 irregular patches of a reddish pigment present in the usual place. Antennæ in female elongated and slender, with fascicles of delicate bristles posteriorly, the superior ones somewhat shorter than the inferior, with the 1st joint of the peduncle comparatively large and stout, 2nd very slender, flagellum twice the length of the peduncle, and composed of about 25 articulations. Inferior antennæ not fully attaining the length of the body, last joint of the peduncle longer than the penultimate one. Gnathopoda comparatively slender, and of almost the same structure as in *A. anomala.* Dactylus of the anterior pairs of pereiopoda about the length of the 2 preceding joints combined. The 2 succeeding pairs comparatively elongated and slender. Last pair of pereiopoda with the basal joint considerably exceeding in length the remaining part of the leg, posterior expansion obliquely truncated at the tip, ischial joint rather stout, meral joint small and strongly constricted at the base, propodal joint oblong, and scarcely as long as the 2 preceding joints combined, dactylus about half its length, and lanceolate in form. Last pair of uropoda rather large, rami twice the length of the basal part, and foliaceous, with a few scattered marginal bristles. Telson oblong oval, with 2 pairs of dorsal denticles, and one pair of apical spinules. Body highly pellucid, and nearly colourless. Length of adult female 8 mm.

Remarks. — This new species somewhat resembles *A. anomala*, from which it is however at once distinguished by the absolute, want of any corneal lenses. It moreover differs by the antennæ being somewhat shorter, and by the more produced last pair of epimeral plates of metasome.

Occurrence. — It is a very rare species, and confined to considerable depths. I have found it in two widely distant places off the coast of Norway, viz., in the outer part of Christianiafjord off Hvalor, and in the Trondhjemsfjord at Vennæs. In both places it occurred quite solitary in depths from 100 to 150 fathoms.

Distribution. — Bohuslän (Stockholm Museum).

13. **Ampelisca pusilla,** G. O. Sars, n. sp.

(Pl. 63, fig. 2).

Form of body somewhat shorter and stouter than in the last species. Cephalon comparatively short, and but little tapering anteriorly, front obliquely emarginated, with the lower corner but little projecting. First pair of coxal plates less obliquely expanded, and, as in the 2 preceding species, not concealing the basal part of the inferior antennæ; 4th pair greater in depth than in breadth, with the inferior edge shorter than the posterior. Last pair of epimeral plates of metasome not produced at the lateral corners, and nearly rectangular. First segment of urosome with the dorsal carina in female nearly obsolete, in male more distinct, and bounded anteriorly by a deep saddle-shaped depression. Eyes, as in *A. amblyops*, imperfectly developed, without any trace of corneal lenses. Antennæ in female nearly equal-sized, densely setous, and but little exceeding half the length of the body, in male more unequal, the inferior ones being considerably more elongated than the superior. Anterior gnathopoda somewhat coarser in structure than the posterior, with the propodos oval, and fully as long as the carpus. The 4 anterior pairs of pereiopoda about as in *A. amblyops*. Last pair of pereiopoda with the basal joint but little longer than the remaining part of the leg, posterior expansion rather broad, and obtusely truncated at the tip, outer part of the leg nearly as in *A. amblyops*, except that the propodal joint is somewhat larger. Same legs in male somewhat smaller, with the basal joint less expanded, and more obliquely truncated posteriorly. Last pair of uropoda comparatively smaller than in the said species, with the rami not nearly so broad. Telson without any dorsal denticles, but with 2 small marginal spinules near the tip on each side. Body whitish, pellucid, without any distinct colouring, except for a faint rosy tinge on the anterior part of the body, at the sides of the 1st pair of coxal plates. Length of adult female scarcely exceeding 5 mm.

Remarks. — This is by far the smallest of the indigenous Ampeliscæ, and though nearly allied to *A. amblyops*, readily distinguished by the comparatively shorter and equal-sized antennæ, as also by the form of the cephalon, by the non-produced last pair of epimeral plates of metasome, and by the much slighter dorsal carina of the 1st segment of urosome.

Occurrence. — I have found this diminutive species rather abundantly in several places, both off the south and west coasts of Norway, and northwards to Selsovig, lying exactly at the polar circle. It only occurs in considerable depths, from 100 to 200 fathoms, muddy bottom.

Distribution. — Bohuslän (Stockholm Museum).

Gen. 2. **Byblis**, Boeck, 1870.

Syn: Ampelisca, Kröyer (part).

Body, as a rule, more slender than in the preceding genus, and highly compressed, though scarcely carinated dorsally. Cephalon with the frontal part but little produced, and truncated at the tip, postantennal corner distinct, and nearly right-angled. Anterior pairs of coxal plates much smaller than in Ampelisca; 1st pair scarcely deeper than the succeeding pairs, but considerably expanded in their outer part, and densely fringed with slender bristles; 4th pair forming posteriorly a rather projecting acuminate corner, beneath which the edge is evenly curved throughout. Last pair of epimeral plates of metasome not produced at the lateral corners. Urosome short and stout. Corneal lenses, when present, two on each side. Antennæ slender, their mutual length different in the different species, basal part of the inferior ones not concealed. Mandibles rather strong, with the body somewhat larger than in Ampelisca, palp very slender, with the 2nd joint not at all expanded, and the last comparatively short. Maxillæ about as in that genus. Maxillipeds with the basal lobe rather narrow and truncated at the tip, masticatory lobe very large, reaching beyond the antepenultimate joint of the palp, penultimate joint of the latter narrower than in Ampelisca. Gnathopoda very slender, especially the posterior ones, otherwise of much the same structure as in that genus. Anterior pairs of pereiopoda likewise rather similar, except that the carpal joint is comparatively somewhat larger. The 2 succeeding pairs rather slender, basal joint less expanded than in the preceding genus, carpal joint elongated and armed on the outer side with several transverse rows of short spinules, dactylus somewhat stronger than in that genus. Last pair of pereiopoda with the basal joint produced posteriorly to a very large and projecting deflexed lobe, fringed on the anterior and inferior edges with a dense row of short ciliated setæ, inner face of the expansion more or less clothed with long and slender bristles; outer part of the leg attenuated, propodal joint not at all expanded, sublinear, and more or less spinous on the edges, dactylus extremely narrow, and tipped by 2 unequal bristles. Last pair of uropoda much smaller than in Ampelisca and scarcely reaching beyond the preceding pairs, rami narrowly lanceolate, not setous in female, their opposite edges being more or less distinctly serrated. Telson short and broad, and only slightly incised posteriorly.

Remarks. — This genus, established by Boeck, is chiefly distinguished from Ampelisca, by the anterior pairs of coxal plates being far less deep, and not concealing the basal part of the inferior antennæ, by the form of the mandibular palp and of the last pair of pereiopoda, finally by the rather different structure of the last pair of uropoda, and that of the telson. The species of this genus are still more difficult to distinguish from each other, exhibiting, as they do, a very uniform appearance, and agreeing almost exactly in the structure of the last pair of pereiopoda, which, in Ampelisca, affords one of the most easily recognizable distinguishing marks. The mutual longitudinal relation of the antennæ, the form of the last pair of epimeral plates of metasome, and the structure of the last pair of uropoda, and that of the telson, are, chiefly, those characteristics by which the species may be more clearly distinguished from each other. Besides the typical form, *B. Gaimardii* of Kröyer, a few species have been characterized in the latter time by different authors. Thus a species, nearly related to B. Gaimardii, has been recorded from the American coast, as *B. serrata* Smith; another form was described by Metzger from the North Sea as *B. crassicornis*, and a third species has recently been characterised by Chevreux, from the Expedition of Hirondelle, as *B. Guerni.* I have myself examined no less than 7 species occurring off the Norwegian coast, to be described in the sequel.

14. **Byblis Gaimardii**, (Kröyer).

(Pl. 64).

Ampelisca Gaimardii, Kröyer, Gaimard's Voyages en Scandinavie, Pl. 23, fig. 1.

Form of body very slender, especially in the male. Cephalon much shorter than the 3 anterior segments of mesosome combined, front transversely truncated, with the lower corner blunted. Anterior pairs of coxal plates very little deeper than the corresponding segments, 1st pair obliquely expanded distally, and advancing along the sides of the cephalon, terminal edge strongly arched in front and densely fringed with long and slender bristles; 4th pair considerably more broad than deep, terminal edge but slightly curved. Last pair of epimeral plates of metasome broadly truncated at the lateral corners. First segment of urosome somewhat gibbous at the end dorsally. Corneal lenses very large and refracting, the lower pair occupying the inferior corners of the front; underlying pigment brownish, with a darker ring encircling the lenses. Superior antennæ in female about equalling in length the third part of the body, and scarcely more than half as long as the inferior, 1st joint of the peduncle short and thick, 2nd about twice as long, and much more slender, last one small, and reaching a little beyond the middle of the penultimate peduncular joint of the inferior ones, flagellum twice the length of the peduncle, and composed of about 20 articulations. Inferior antennæ in female about equalling in length $^3/_4$ of the body, last joint of the peduncle shorter than the penultimate one. Antennæ in male much more elongated, the inferior ones exceeding the length of the body, peduncles of both clothed, on their opposite edges, with numerous transverse rows of short sensitive hairs, flagella extremely slender and nearly naked. Anterior gnathopoda a little stronger than the posterior ones, with the propodos oblong oval, and considerably shorter than the carpus; that of the posterior ones much narrower, and slightly tapering distally. Anterior pairs of pereiopoda with the propodal joint rather narrow, and considerably longer than the carpal joint, dactylus slender, and somewhat exceeding the length of the former. The 2 succeeding pairs with the basal joint much less broad than long, and having the anterior edge evenly curved, and fringed with ciliated setæ, carpal joint with about 6 transverse rows of spinules on its outer side, dactylus comparatively short. Last pair of pereiopoda with the posterior expansion of the basal joint reaching considerably beyond the meral joint and nearly transversely truncated at the tip, inferior and anterior edges defined by an obtuse angle, carpal joint fully as long as the 2 preceding joints combined, and having a row of about 9 slender spines along the anterior edge, propodal joint a little shorter. Last pair of uropoda with the rami sharply pointed at the tip, their opposite edges finely serrated, and having near the base a projecting corner, inner ramus with 8 denticles on the inner edge. Telson rounded, nearly as long as it is broad, with a few marginal hairs, and two somewhat longer bristles at the tip, incision very short, rounded at the bottom, Body whitish, pellucid, with faint orange-coloured shadows, frontal part of the cephalon densely mottled with dark violet. Length of adult female 15 mm, of male somewhat less.

Remarks. — This form was first recorded by Kröyer as an Ampelisca, and was figured in the well known work of Gaimard, as *Ampelisca Gaimardii.* In the year 1870 Boeck, however, justly separated it from that genus, and established the genus *Byblis* for its reception. It may thus be regarded as the type of the present genus. The *Byblis serrata* of Smith, of which species I have had a specimen for examination, kindly sent to our Museum, from that author, is very nearly allied to the Kröyerian form, but apparently distinct.

Occurrence. — The species is a genuine arctic form, occurring rather abundantly everywhere off the coast of Finmark, in moderate depths. It also however, extends southwards along the whole west coast of Norway, and is even occasionally met with off the south coast, to the Christianiafjord.

Distribution. — Arctic Ocean widely distributed: Greenland, Labrador, Iceland, Spitsbergen, the Murman coast, the Kara Sea, the Siberian Polar Sea; Kattegat (Meinert), Bohuslän (Bruzelius) *).

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*) The statement of its occurrence also in the Mediterranean off Naples (Costa), and in the Adriatic (Heller), seems to me very questionable, and may most probably result from its being confounded with some nearly allied species.

15. **Byblis longicornis,** G. O. Sars, n. sp.

(Pl. 65, fig. 1).

Form of body nearly as in *B. Gaimardii.* Cephalon with the frontal part somewhat less produced, and nearly transversely truncated at the tip, lower corner well-marked and sharp. Coxal plates about as in the preceding species. Last pair of epimeral plates of metasome obtusely rounded at the lateral corners. First segment of urosome distinctly gibbous at the end dorsally. Corneal lenses somewhat smaller than in the type species, the lower pair placed close to the inferior edge of the cephalon, at some distance from the inferior corners of the front; ocular pigment well defined, and light brown. Antennæ very elongated, the superior ones (in female) much more fully developed than in *B. Gaimardii*, attaining about $^3/_4$ of the length of the body, peduncle reaching to the end of the penultimate peduncular joint of the inferior ones, flagellum three times as long as the peduncle, and composed of about 35 articulations provided posteriorly with fascicles of slender setæ. Inferior antennæ half as long again as the superior, and considerably exceeding the length of the whole body, the outer 2 joints of the peduncle nearly equal-sized. Gnathopoda very like in structure those in *B. Gaimardii*, though the propodos appears somewhat longer in proportion to the carpus. Anterior pairs of pereiopoda with the propodal joint but little longer than the carpal one, dactylus comparatively shorter than in *B. Gaimardii.* The 2 succeeding pairs about as in that species. Last pair of pereiopoda with the posterior expansion of the basal joint densely clothed with setæ on the inner face, anterior and inferior edges not distinct from each other, both forming together quite an even curve; carpal joint scarcely as long as the 2 preceding ones combined, and having anteriorly 5 fascicles of slender spines, propodal joint very slender and exceeding the carpal one in length. Last pair of uropoda somewhat coarser in structure than in the type species, rami lanceolate, with the opposite edges finely serrated, but without any distinct projecting angle at the base, inner ramus with 5 denticles inside; penultimate pair with the rami less densely spinous. Telson broader than it is long, outer part considerably narrowed, with the tip subtruncated, and bearing 2 slender spines dorsally, cleft very small and narrow. Colour of the living animal not yet stated, but no trace of pigmentary ramifications present on the cephalon in alcoholic specimens. Length of adult female 12 mm.

Remarks. — Though very nearly allied to *B. Gaimardii,* this new species may at once be recognized by the unusually elongated antennæ, and especially by the much fuller development of the superior ones. Also the absolute want of any pigmentary ramifications on the cephalon may serve for distinguishing this form from the type species.

Occurrence. — Of this species a single specimen, the one here figured, was collected long ago, by the author, off the Lofoten Isles. Another specimen, preserved in the Stockholm Museum, was taken by v. Yhlen, on the great fishing banks outside the coast of Finmark. Finally, a few specimens were procured during the Norwegian North Atlantic Expedition in 3 different Stations, at depths varying from 70 to 148 fathoms, but were at that time erroneously determined as *B. Gaimardii.*

Distribution. — The Barents Sea, south coast of Spitsbergen (Norw. North Atlantic Expedition).

16. **Byblis affinis,** G. O. Sars, n. sp.

(Pl. 65, fig. 2).

Body somewhat shorter and stouter than in the 2 preceding species. Cephalon with the frontal part but little produced, tip transversely truncated, with the lower corners distinctly angular, inferior edge behind the latter rather convex. First pair of coxal plates not very much expanded distally. Last pair of epimeral plates of metasome bluntly truncated at the lateral corners. Corneal lenses smaller than in the 2 preceding species, the lower pair remote from the inferior corners of the front, ocular pigment dark brownish, with a somewhat lighter coating. Superior antennæ in female scarcely exceeding half the length of the body, peduncle reaching about to the end of the inferior ones, flagellum twice the length of the peduncle, and composed of about 24 articulations. Inferior antennæ not twice as long as the body, the 2 outer joints of the peduncle nearly equal-sized. Gnathopoda comparatively feebler in structure than in the 2 preceding species, propodos but little shorter than the carpus. Anterior pairs of pereiopoda with the propodal joint considerably longer than the carpal one, and gradually tapering distally, dactylus scarcely as long as the former. Last pair of pereiopoda with the posterior expansion of the basal joint subtruncated at the tip, though the anterior corner is rounded off, carpal joint about as long as the 2 preceding joints combined, and armed with 4 slender spines anteriorly, propodal joint somewhat shorter and much narrower. Last pair of uropoda with the rami slightly serrated on their opposite edges, inner ramus armed inside with 4 denticles. Telson nearly as long as it is broad at the base, very slightly narrowed distally, tip transversely truncated, with 2 small apical spinules, cleft almost extending to the middle, and very narrow, fissure-like. Body pellucid, with reddish intestine shining through the integuments, and having a few orange-coloured patches on the posterior part, and on the basal joints of the last 3 pairs of pereiopoda, cephalon finely dotted with whitish and brownish pigment, which, however, does not form any distinct ramifications. Length of adult female scarcely exceeding 9 mm.

Remarks: On going over the rather large material of *Byblis Gaimardii* collected off the Norwegian coast in different places, and at different times, I have been aware of this very nearly allied, though apparently distinct species, and quite recently, I have had an opportunity of examining it also in the living state. From *B. Gaimardii*, it may be readily distinguished not only by its much inferior size, but also by the much smaller corneal lenses, by the distinctly angular inferior corners of the front, the different mutual relation in length of the antennæ, and finally by the want of distinct pigmentary ramifications on the cephalon.

Occurrence. — As the species was formerly confounded with B. Gaimardii, I am at present unable to state, with certainty, the several places in which the species probably occurred, though I believe them to have belonged either to the south or west coast of Norway. Off the coast of Finmark it seems, in fact, to be wholly absent. For not even a single specimen could be detected among a vast material of *Byblis Gaimardii* collected by Mr. Schneider off that part of our country, and kindly sent to me for examination. As mentioned above, I have, quite recently, observed this species in a living state. It occurred only in a single locality, at the entrance of the Skjørnfjord, outer part of the Trondhjemsfjord, in a depth of 40 to 60 fathoms, but here rather abundantly.

17. **Byblis erythrops,** G. O. Sars.

(Pl. 65, fig. 3).

Byblis erythrops, G. O. Sars, Oversigt af Norges Crustaceer I, p. 109, Pl. 6, fig. 3.

Body rather slender and highly compressed. Cephalon with the frontal part transversely truncated at the tip, inferior corners distinctly projecting. First pair of coxal plates obliquely expanded distally, and densely fringed with rather long setæ. Last pair of epimeral plates of metasome nearly rectangular, lateral corners rounded off. Corneal lenses very small, and but little refractive, the lower pair placed at some distance from the inferior corners of the front; ocular pigment bright red. Antennæ rather elongated, and less unequal than in the preceding species; the superior ones but little shorter than the inferior, with the peduncle reaching considerably beyond the penultimate peduncular joint of the latter, flagellum more than twice as long as the peduncle, and composed of about 35 articulations. Inferior antennæ nearly attaining the length of the body, last joint of the peduncle considerably longer than the penultimate one. Gnathopoda very slender, especially the posterior ones, propodos in both pairs oblong, and much shorter than the carpus. Anterior pairs of pereiopoda with the propodal joint rather elongated and slender, dactylus somewhat shorter. Last pair of pereiopoda with the posterior expansion of the basal joint very large, reaching nearly to the end of the carpal joint, anterior and inferior edges not distinct from each other, both forming together quite an even curve, carpal joint fully as long as the 2 preceding ones combined, and rather expanded in its outer part, propodal joint nearly of same length, but very narrow, linear in form. Last pair of uropoda with the rami but very slightly serrated on their opposite edges, inner ramus with 5 rather coarse denticles inside. Telson rather small, subquadrangular in form, scarcely tapering distally, tip transversely truncated, with 2 apical spinules, cleft not extending to the middle. Body highly pellucid, with dark violet intestine shining through the integuments, sides partly mottled with pure white. Length of adult female scarcely exceeding 8 mm.

Remarks. — The present species, shortly described and figured by the author in the above cited paper, is easily distinguished from any of the 3 preceding species by the bright red ocular pigment, as also by the less unequal antennæ. It is also rather inferior in size.

Occurrence. — I have only met with this form in 2 localities, viz, at Magerø, west coast of Norway, and at Bejan, outer part of the Trondhjemsfjord. It occurred here rather sparingly in a depth of 80—100 fathoms, muddy bottom. Out of Norway, it has not yet been recorded.

18. **Byblis crassicornis**, Metzger.

(Pl. 66, fig. 1).

Byblis crassicornis, Metzger, Nordseefahrt der Pommerania. Crustacea, p. 297, Pl. VI, fig. 9.

Form of body slender. Cephalon nearly as long as the first 3 segments of mesosome combined, frontal part somewhat tapering and narrowly truncated at the tip, inferior corners but little projecting, though distinctly angular. First pair of coxal plates gradually widening below, terminal edge evenly curved. Last pair of epimeral plates of metasome gently rounded at the lateral corners. Corneal lenses wholly wanting. Antennæ nearly equal-sized, and attaining in length about $^2/_3$ of the body; peduncle of the superior ones reaching considerably beyond the penultimate peduncular joint of the inferior, its 1st joint rather large and tumid, flagellum scarcely twice the length of the peduncle, and composed of about 20 articulations. Inferior antennæ but very little longer than the superior, last joint of the peduncle somewhat shorter than the penultimate one. Gnathopoda nearly as in *B. erythrops.* Last pair of pereiopoda with the posterior expansion of the basal joint somewhat smaller and narrower than in the other species, and scarcely reaching beyond the meral joint, its anterior and inferior edges not defined from each other, carpal joint scarcely longer than the meral one, and having anteriorly 3 slender spines, propodal joint about the same length. Last pair of uropoda with the rami not serrated on their opposite edges, the outer one having only a single dentiform projection anterior to the middle, both rami armed on their upper face with 4 unusually strong denticles. Telson fully as long as it is broad at the base, outer part considerably tapering, with the tip narrowly rounded, cleft extending nearly to the middle, each of the terminal lobes with a single spinule dorsally. Body highly pellucid, and nearly colourless. Length of adult female scarcely exceeding 7 mm.

Remarks. — I think I am right in identifying this form with the *B. crassicornis* of Metzger, though neither the description, nor the figures given by that author, are fully satisfactory to distinguish it from its nearest allies. From the 4 species described above, it is easily recognized by the absolute want of any corneal lenses, and from the 2 succeeding species, by the fuller development of the superior antennæ. Also the structure of the last pair of pereiopoda and uropoda, and that of the telson, affords rather easily recognizable characteristics.

Occurrence. — This species has only come under my notice in two localities, viz., at Hvitingsø, west coast of Norway, and in the Christianiafjord off Hvalør. In both places it occurred quite solitary in a depth of from 100 to 150 fathoms, muddy bottom. The specimen described by Metzger was taken outside Jæderen, in a depth of 106 fathoms. Out of Norway it has not yet been recorded.

19. **Byblis abyssi,** G. O. Sars.

(Pl. 66, fig. 2).

Byblis abyssi, G. O. Sars, Crust. & Pycnogonida nova etc. No. 33.

Form of body about as in the last species. Cephalon with the frontal part somewhat less produced, and transversely truncated at the tip, lower corners distinct, and nearly right-angled. First pair of coxal plates obliquely expanded distally. Last pair of epimeral plates of metasome obtusely truncated at the lateral corners. Corneal lenses quite wanting. Superior antennæ in female but little exceeding half the length of the body, peduncle by far not reaching to the end of the penultimate peduncular joint of the inferior ones, its 1st joint about half the length of the cephalon, flagellum fully twice as long as the peduncle, and composed of about 28 articulations. Inferior antennæ nearly twice as long as the superior, last joint of the peduncle considerably shorter than the penultimate one. Gnathopoda about as in the two preceding species. Last pair of pereiopoda with the posterior expansion of the basal joint broader than in *B. crassicornis*, and somewhat projecting beyond the meral joint, anterior and inferior edges forming together a strong curve; carpal joint fully as large as the 2 preceding joints combined, and having anteriorly 6 spines, propodal joint a little shorter, dactylus scarcely more than half as long. Last pair of uropoda with the outer ramus having only 3 serrations interiorly, the inner distinctly serrated on the opposite edge, and having besides 4 rather coarse denticles. Telson broader than it is long, nearly quadrangular in form, outer part but little narrowed, and transversely truncated at the tip, which is provided with 2 slender spinules, cleft very small, nearly obsolete. Body whitish, pellucid, without any distinct colouring. Length of adult female 12 mm.

Remarks. — This species agrees with *B. crassicornis* in the absolute want of any corneal lenses, but may readily be distinguished from that species, by the different longitudinal relation of the two pairs of antennæ, as also by several other structural details mentioned in the above diagnosis, not to speak of its much larger size.

Occurrence. — Three specimens of this species were collected during the Norwegian North Atlantic Expedition in 3 different Stations, all lying outside the west and north coast of Norway, depth from 350 to 630 fathoms. It may thus perhaps properly be referred to the fauna of Norway.

20. **Byblis minuticornis,** G. O. Sars.

(Pl. 66, fig. 3).

Ampelisca minuticornis, G. O. Sars, Crust. & Pycnogonida nova etc. No. 32.

Form of body somewhat shorter and stouter than in the 2 preceding species. Cephalon about equalling in length the 3 anterior segments of mesosome combined, frontal part rather produced, and narrowly truncated at the tip, lower corners but very little projecting. First pair of coxal plates rather expanded distally, terminal edge obliquely rounded, and finely serrated between the marginal setæ. Last pair of epimeral plates of metasome obtusely truncated at the lateral corners. Corneal lenses quite wanting.

Superior antennæ in female extremely small, about as long as the cephalon and the first 2 segments of mesosome combined, and scarcely reaching beyond the penultimate peduncular joint of the inferior ones, flagellum shorter than the peduncle, and only composed of 6 articulations. Inferior antennæ scarcely exceeding half the length of the body, last joint of the peduncle shorter than the penultimate one. Gnathopoda of the usual structure, the posterior ones more slender and elongated than the anterior. Last pair of pereiopoda with the posterior expansion of the basal joint rather large and broad, reaching about to the end of the carpal joint, and obtusely truncated at the tip, anterior corner rounded off; carpal joint scarcely longer than the 2 preceding joints combined, and having but 2 fascicles of spines anteriorly, propodal joint about the same length, but, as usual, much more slender. Last pair of uropoda with the rami comparatively short, and without any distinct serrations, the outer one exhibiting only, on the inner edge, somewhat anterior to the middle, a single dentiform projection, inner ramus with only 2 marginal denticles. Telson subquadrangular in form, nearly as long as it is broad at the base, tip truncated, and armed with a pair of apical spinules, cleft extending about to the middle. Body highly pellucid, and nearly colourless. Length of adult female 8 mm.

Remarks. — This form was erroneonsly described by the author as an *Ampelisca*. It is however quite assuredly a true *Byblis*, though exhibiting a less slender form than usual. The extremely small superior antennæ will at once serve for recognition of the present species, which thus justly bears its specific apellation.

Occurrence. — Several specimens of this species were collected during the Norwegian North Atlantic Expedition in as may as 6 different Stations, and at depths varying from 350 to 634 fathoms. Five of these Stations were located outside the great fishing banks off the west and north coast of Norway, and hence the species may perhaps be referred to the fauna of Norway.

Distribution. — Spitsbergen (Norw. North Atlant. Exped.).

Gen. 3. **Haploops**, Lilljeborg, 1855.

Body, as a rule, more robust than in the genus *Byblis*, and more like that in *Ampelisca*. Cephalon with the frontal part less produced, postantennal corners rounded off. First pair of coxal plates rather large, deeper than the succeeding ones, and gradually expanded distally, terminal edge densely fringed with slender setæ; 4th pair nearly as in *Byblis.* Corneal lenses, when present, only two, the inferior pair being quite absent. Antennæ in female nearly equal-sized, and densely setous, the basal part of the inferior ones partly concealed; those in male more unequal in length and extremely slender, exhibiting a similar structure as in the males of the genus *Ampelisca* and *Byblis.* Mandibles about as in *Byblis*, but with the palp much larger and having the last joint elongated and densely setous. Maxillæ scarcely differing in structure from those in the latter genus. Maxillipeds with the masticatory lobe comparatively smaller, scarcely reaching to the end of the antepenultimate joint of the palp; penultimate joint of the latter with the outer corner produced to a rounded setiferous lobe. Gnathopoda, as a rule, less slender than in the genus *Byblis*, otherwise of much the same structure. The 4 anterior pairs of pereiopoda likewise rather similar to those in the latter genus. Last pair of pereiopoda, on the other hand, rather different, having the basal joint far less dilated, with the posterior expansion very slight, meral and carpal joints laminarly dilated, and spinous at the edges, propodal joint and dactylus very narrow. Last pair of uropoda comparatively more fully developed than in the genus *Byblis*, and considerably projecting beyond the preceding pairs, rami more or less foliaceous, and setous at the edges, the inner one having besides a number of strong denticles inside. Telson of moderate size, and deeply cleft.

Remarks — This genus, established by Prof. Lilljeborg, is chiefly characterised by the absolute want of the inferior pair of corneal lenses, and by the structure of the last pair of pereiopoda. In some characteristics, as the structure of last pair of uropoda, and of the telson, it seems to agree more nearly with *Ampelisca*, whereas in most other structural details it bears a closer relationship to the genus *Byblis.* The genus is wholly restricted to the northern Ocean, and comprises, as yet, but 4 species, 3 of which will be described in the following pages.

21. **Haploops tubicola,** Lilljeborg.

(Pl. 67).

Haploops tubicola, Lilljeborg, Øfvers. af Vet. Akad. Förh. 1855, p. 134.

Syn: Ampelisca Eschrichtii, Lilljeborg (olim).
» Haploops carinata, Lilljeborg (adult male).

Form of body in female rather short and stout, with the back broadly rounded, and quite smooth. Cephalon but little longer than the first 2 segments of mesosome combined, frontal part gradually tapering, and transversely truncated at the tip, inferior corners blunted. First pair of coxal plates very large, gradually expanded distally, tip broadly rounded, and densely fringed with ciliated setæ; the 2 succeeding pairs much smaller, and somewhat tapering distally; 4th pair rather deeply emarginated posteriorly in their upper part, the emargination being defined below by an acuminate lobe. Last pair of epimeral plates of metasome nearly rectangular, lateral corners not produced. First segment of urosome with a very slight carina dorsally. Ocular lenses distinct and rather large, placed near the upper corner of the frontal part, underlying pigment of somewhat irregular form, partly extending downwards, and of bright reddish colour. Superior antennæ about half the length of the body, 2nd joint of the peduncle not attaining twice the length of the 1st, flagellum two and a half times as long as the peduncle, and composed of about 23 articulations. Inferior antennæ scarcely longer than the superior, the 2 last joints of the peduncle about equal-sized. Mandibular palp with the terminal joint as long as the preceding one, and slightly dilated in the middle. Gnathopoda comparatively strong, propodos oval in form, and nearly equal in both pairs. Anterior pairs of pereiopoda with the propodos somewhat curved and gradually tapering distally, dactylus of about same length; basal joint of 3rd pair fully as broad as it is long, that of 4th pair with the anterior edge strongly curved in the middle, carpal joint in both pairs longer than the 2 preceding joints combined, dactylus not very strong. Last pair of pereiopoda with the basal joint rather narrow, broadest at the base, posterior expansion slightly concave in the middle, and forming below a rather narrow deflexed lobe, scarcely reaching beyond the ischial joint, meral joint rather large, longer than the carpal one, and gradually widening distally, propodal and terminal joints very small, and combined, much shorter than the carpal one. Last pair of uropoda with the rami subequal and foliaceous, fringed (in female) with short bristles, outer ramus having, besides, 4 small denticles. Telson but little longer than it is broad at the base, rounded at the tip, cleft extending far beyond the middle. Body whitish, pellucid, with dark violet intestine shining through the integuments. — Adult male much more slender than the female, and having the back distinctly carinated in its posterior part. First segment of urosome deeply impressed dorsally, and exhibiting, behind the depression, a hump-shaped setous prominence. Inferior antennæ very slender and elongated, exceeding the length of the body, and nearly twice as long as the superior ones. Last pair of uropoda with the rami comparatively larger than in female, and fringed with long ciliated setæ. Length of adult female 10 mm., of male 11 mm.

Remarks. — The present species, the type of the genus, was first detected by Prof. Lilljeborg at Kullen, but, at that time, erroneously identified with *Ampelisca Eschrichti* of Kröyer. Subsequently he recognized his mistake, and redescribed the species as the type of a new genus, under the above name, adding, at the same time, another supposed new species as *H. carinata.* The latter form, though still supported by Boeck, is, however, quite certainly, nothing but the adult male of *H. tubicola.*

Occurrence. — Though nowhere in any abundance, this form seems to occur along the whole coast of Norway, up to Finmark, in depths varying from 20 to 100 fathoms. As stated by Prof. Lilljeborg and others, it constructs itself tubes of mud for dwelling in, and this may probably be the case with all the species of the genus.

Distribution. — Arctic Ocean: Greenland, Labrador, Iceland, Spitsbergen, the Barents Sea, the Kara Sea, the Sibirian polar Sea; British Isles, coast of France, Kattegat, the Baltic (in some places collected in great abundance).

22. **Haploops setosa,** Boeck.

(Pl. 68, fig. 1).

Haploops setosa, Boeck, Crust. amphip. bor. & arctica, p. 148.

Body considerably more slender than in the preceding species, back broadly rounded, with six fascicles of long slender setæ originating from the end of the 3 last segments of mesosome and those of metasome. Cephalon exceeding in length the first 2 segments of mesosome combined, frontal part somewhat emarginated at the tip, lower corner distinctly angular. First pair of coxal plates less expanded distally than in the type species; 4th pair not nearly so deep at the corresponding segment, posterior projection very long and acuminate. Last pair of epimeral plates of metasome slightly produced at the lateral corners. First segment of urosome with a hump-shaped setous prominence dorsally. Corneal lenses quite wanting, but 2 irregular patches of a reddish pigment, partly coated with white, present in the usual place. Superior antennæ considerably exceeding half the length of the body, 2nd joint of the peduncle much elongated, flagellum twice the length of the peduncle, and composed of about 24 articulations. Inferior antennæ about the length of the superior, the 2 last joints of the peduncle comparatively longer than in *H. tubicola.* Mandibular palp extremely slender, last joint linear in form, and exceeding in length the penultimate one. Gnathopoda comparatively more slender than in the type species, especially the posterior ones, propodos in the anterior pair oval, in the posterior nearly linear. Anterior pairs of pereiopoda with the dactylus longer than the propodos. The 2 succeeding pairs comparatively shorter and stouter than in *H. tubicola;* basal joint of the antepenultimate pair oval, scarcely as broad as it is long, that of the penultimate pair with the anterior edge but very slightly curved; carpal joint in both pairs comparatively short, scarcely longer than the two preceding joints combined, and very obliquely truncated at the tip, dactylus very strong and recurved. Last pair of pereiopoda with the basal joint oblong quadrangular, not tapering distally, posterior expansion densely setous, and forming below, a broadly rounded setiferous lobe, reaching about to the middle of the meral joint, the latter scarcely longer than the carpal one, which is shorter than the propodal and terminal joints combined. Last pair of uropoda with the inner ramus shorter than the outer and provided, in addition to the setæ, with 2 very strong denticles. Telson small, subtriangular, about as long as it is broad at the base, and gradually tapering distally, cleft very narrow, fissure-like, and extending about to the middle, its edges bordered by several slender bristles, the outer of which are very long. Colour greyish white, with brownish intestine shining through the integuments. Length of adult female 13 mm.

Remarks. — This species established by Boeck, is easily distinguishable from the preceding one by its much more slender form of body, and especially by the peculiar ornamentation of the back with fascicles of slender erect setæ. The absolute want of any corneal lenses, and the rather different structure of the last pair of pereiopoda, are also easily recognizable characteristics by which the present species may be distinguished from *H. tubicola.*

Occurrence. — The species is a true deep water form, occurring only in depths varying from 100 to 300 fathoms. I have met with it in several places, both off the south and west coasts of Norway, and northwards to the Lofoten Isles. Boeck first detected it in the Bergensfjord.

Distribution. — Greenland (Hansen), the Kara Sea (Stuxberg); Iceland, the Barents Sea, Beeren Eiland, Spitsbergen (Norw. North Atlant. Exp.)

23. **Haploops robusta,** G. O. Sars, n. sp.

(Pl. 68, fig. 2).

Body rather robust, with broadly vaulted back, and provided with similar dorsal fascicles of slender setæ as in *H. setosa.* Cephalon about the length of the 2 first segments of mesosome combined, front obtusely truncated, the inferior corners evenly rounded. First pair of coxal plates rather expanded distally, the succeeding pairs about as in *H. setosa.* Last pair of epimeral plates of metasome not produced at the lateral corners, posterior edge rather curved. First segment of urosome with a similar hump-shaped dorsal prominence as in *H. setosa.* Corneal lenses quite wanting. Antennæ much shorter and stouter than in the preceding species, the peduncle of the superior ones not attaining even the length of the cephalon and the first 2 segments of mesosome combined, and having the 2nd joint but little longer than the 1st; last joint of the peduncle of the inferior ones shorter than the penultimate. Gnathopoda with the propodos comparatively shorter than in *H. setosa*, and in both pairs oblong oval in form. Last pair of pereiopoda rather large, basal joint oblong quadrangular, somewhat broader at the base, the deflexed lobe rather broad, obtusely truncated at the tip, and scarcely reaching beyond the ischial joint; outer part of the leg about as in *H. setosa.* Last pair of uropoda with the inner ramus scarcely shorter than the outer, and provided, in addition to the setæ, with 3 strong denticles. Telson rounded oval in form, somewhat longer than it is broad at the base, cleft extending nearly to the base, and in its outer part bordered with slender bristles. Colour not yet stated. Length of the specimen examined 19 mm.

Remarks. — This new species is nearly allied to *H. setosa*, from which it however differs, not only in its much larger size, but also in its more robust form of body, in the evenly rounded lateral corners of the front, and the much shorter and stouter antennæ, and finally, in the non-produced last pair of epimeral plates of metasome. It cannot be the *H. lævis* of Hoeck (= H. lineata Stuxberg), which species is much more nearly related to *H. tubicola*, and, like this form, wholly wants the dorsal fascicles of setæ.

Occurrence. — I have only seen a single specimen of this form, which was collected by me, many years ago, off the coast of Finmark, but was at that time erroneously regarded as a large specimen of *H. setosa.*

Fam. 6. Stegocephalidæ.

Body short and robust, its anterior part being much tumified, and having the back strongly deflexed in front. Cephalon short and deep, and apt to be almost wholly withdrawn within the 1st segment of mesosome. Anterior pairs of coxal plates generally rather deep, the 4th pair much the largest, and sometimes greatly expanded, encompassing, as a rule, more or less completely, the succeeding pair inferiorly. Metasome moderately strong, with well developed epimeral plates. Urosome short and stout. Antennæ short, nearly equal in length, and scarcely differing in the two sexes; the superior ones having a very small accessory appendage lying inside the peduncle. Buccal mass greatly projecting. Anterior lip lamellar, bilobed at the tip; posterior lip without any inner lobes, its lateral parts more or less expanded, and separated by a deep incision. Mandibles rather simple in structure, forming strong curved lamellæ without any trace of palp, cutting edge rather broad, wanting a molar expansion, but having on the left side a small accessory lamella. Maxillæ comparatively very large; 1st pair with the basal lobe short and broad, palp generally small; 2nd pair with the lobes divaricate, and rather dissimilar in shape, the inner being much broader than the outer, which is linear and more or less elongated. Maxillipeds originating from a common very narrow basal part, masticatory lobes generally greatly expanded, palp slender and attenuated. Gnathopoda, as a rule, slender and feeble, not subcheliform. Pereiopoda normal, antepenultimate pair having always the basal joint narrow linear, last pair generally shorter than the others, with the basal joint laminarly expanded. Branchial lamellæ simple; incubatory lamellæ rather large. Uropoda subsimilar, successively diminishing in length, with the rami lanceolate. Telson rather short.

Remarks. — This is a very distinct family, exhibiting, as it does, but few characteristics in common with those treated of in the preceding pages. In their outer habitus, the forms under question show perhaps, by their smooth compact body, a remote resemblance to some of the Lysianassidæ; but in the anatomical structure, they are widely different. The family comprises as yet 5 genera, 3 of which are now for the first time established.

Gen. 1. **Stegocephalus,** Kröyer, 1842.

Body stout and compact, quite smooth, with rather firm integuments, and with the anterior part of the back boldly curved. Cephalon very short, its lateral parts to a great extent covered by the 1st pair of coxal plates, front more or less produced in the form of a curved rostrum, lateral corners distinctly projecting. First pair of coxal plates oblong triangular, terminating in an obtuse point, the 2 succeeding pairs rather narrow, but deeper than the 1st; 4th pair strongly developed, forming posteriorly a large expansion, the inferior edge of which is evenly curved; 5th pair obliquely oval, and scarcely deeper than the succeeding ones. Eyes wholly wanting. Antennæ rather robust, the superior ones with the peduncle short and stout, flagellum multiarticulate, and provided posteriorly with fascicles of delicate sensory bristles, accessory appendage biarticulate, with the terminal joint extremely small. Epistome flattened in front. Anterior lip deeply bilobed, the lobes somewhat unequal. Posterior lip with the lateral lobes separated by a rather broad sinus, and terminating in an incurved dentiform projection. Mandibles with the cutting edge coarsely dentate, accessory lamella of the left mandible rather broad, securiform, with a finely serrated edge. First pair of maxillæ very large, basal lobe obcordate in form, and edged with numerous ciliated setæ, palp uniarticulate, not expanded distally, and reaching about to the end of the masticatory lobe, its tip armed with a few denticulated spines. Second pair of maxillæ with the inner lobe broadly oval, the outer elongated linear, and bearing on the tip a number of slender spines, each terminating with a hatchet-shaped, uncinate dilatation. Maxillipeds with the basal lobe of moderate size, and obtusely rounded at the tip, masticatory lobe large and broad, slightly serrated on the inner edge, palp very slender. Gnathopoda somewhat unequal, the anterior ones being more robust than the posterior, with the propodos scarcely attenuated. The two posterior pairs of pereiopoda not very dissimilar, basal joint in both laminarly expanded. Last pair of uropoda with the rami subequal, lanceolate and uniarticulate, their edges minutely denticulated. Telson triangular, deeply cleft, unarmed.

Remarks. — In the restriction here adopted, this genus is chiefly characterised by the two posterior pairs of pereiopoda being subsimilar in shape, both having the basal joint laminarly dilated, as also by the somewhat robust structure of the anterior gnathopoda. The genus comprises as yet 2 distinct species, which will be described in the sequel.

1. **Stegocephalus inflatus,** Kröyer.

(Pl. 69).

Stegocephalus inflatus, Kröyer, Nat. Tidsskr. 1 R. Bd. 4, p. 150.

Syn: Stegocephalus ampulla, Boeck and others (but not Phipps).

Body very robust and tumid, with the back broadly vaulted and strongly deflexed anteriorly. Cephalon produced in front to a rather strong deflexed rostrum, reaching to the end of the 1st peduncular joint of the superior antennæ, lateral corners somewhat projecting, and narrowly rounded at the tip. First segment of mesosome longer than the others, but shorter than the 2 succeeding ones combined. Fourth pair of coxal plates very large, nearly twice as deep as the corresponding segment, their breadth equalling that of the 3 succeeding pairs combined, posterior expansion rather broad, and quite encompassing the succeeding pair inferiorly, distal edge forming posteriorly a strong curve. Last pair of epimeral plates of metasome produced to a sharp corner, inferior edge coarsely serrated, posterior one smooth. Superior antennæ with the 1st joint of the peduncle nearly twice as large as the other 2 combined, and forming posteriorly a slight laminar expansion edged with delicate ciliated bristles, flagellum fully twice the length of the peduncle, and composed of about 12 articulations, the 1st of which is but little longer than the succeeding ones; accessory appendage about half as long as the peduncle. Inferior antennæ a little longer than the superior, last joint of the peduncle exceeding in length the penultimate one, flagellum rather slender, and nearly as long as the peduncle, Anterior gnathopoda with the propodos about the length of the carpus, the latter but slightly dilated. Posterior gnathopoda much more slender, with the propodos sublinear in form, and considerably longer than the carpus. Penultimate pair of pereiopoda with the basal joint oblong quadrangular, infero-posterior corner nearly right-angled. Last pair of pereiopoda a little shorter, but with the basal joint considerably larger, and produced inferiorly to a sharp corner, its posterior edge somewhat arcuate, and finely serrated. Last pair of uropoda with the rami nearly twice as long as the basal part, and round about edged with short denticles. Telson about twice as long as it is broad at the base, outer part tapering to a point, cleft very narrow, and extending about to the middle. Colour light yellowish, variegated with brownish patches, sometimes assuming a rather regular quadrangular form, antennæ and legs banded with reddish brown. Length of adult female 25 mm. Maximum size of arctic specimens (according to Dr. Hansen) reaching 47 mm.

Remarks. — The present species may be regarded as the type of the genus, since it was the form, upon which Kröyer established his genus. As mentioned above, Boeck, and most subsequent authors, have erroneously identified Kröyer's species with the form described long before by Phipps as *Cancer ampulla*; but Dr. Hansen is certainly quite right in regarding the latter as distinct and identical with the species recently named and figured by Dr. Stuxberg as *Stegocephalus Kessleri*, which form, in my opinion, belongs to another genus, *Aspidopleurus*, to be described in the sequel.

Occurrence. — I have found the present species, not infrequently, in several places off the coast of Norway, from the Christianiafjord to Vadso. It is a true deep water form, occurring especially in great abundance in the region of the deep sea corals, depth from 100 to 150 fathoms.

Distribution. — Arctic Ocean widely distributed: Greenland, Spitsbergen, the Murman Coast, the White Sea, Franz Joseph's Land, the Kara Sea, the Sibirian Polar Sea; Shetland Isles (Norman).

2. **Stegocephalus similis,** G. O. Sars, n. sp.

(Pl. 70, fig. 1).

In general appearance rather like the preceding species, though perhaps not fully so robust of form. Cephalon forming in front a very short and obtuse rostral projection, lateral corners but little projecting, and rounded at the tip. First segment of mesosome fully as long as the 2 succeeding ones combined. Fourth pair of coxal plates considerably smaller than in the type species, much less than twice as deep as the corresponding segment, and not attaining the breadth of the 3 succeeding pairs combined, posterior expansion rather narrow, scarcely encompassing the 5th pair fully inferiorly, distal edge forming a very slight and quite even curve. Last pair of epimeral plates of metasome not produced at the lateral corners, posterior edge slightly arcuate and coarsely serrated, inferior edge quite smooth. Superior antennæ of much the same structure as in the preceding species, but having the flagellum comparatively shorter, and only composed of 9 articulations, the 1st of which is considerably larger than the others, especially in the male. Inferior antennæ scarcely longer than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum about the length of those joints combined. Anterior gnathopoda comparatively somewhat more robust than in *St. inflatus*, the carpus being rather dilated, about as broad as it is long, and shorter than the propodos. Posterior gnathopoda about as in that species. Basal joint of the 2 last pair of pereiopoda subsimilar in form, regularly oval, with the infero-posterior corner evenly rounded off, that of last pair, as usual, the larger. Uropoda nearly as in *St. inflatus*. Telson comparatively broader, with the outer part less attenuated, cleft extending beyond the middle. Body light straw-coloured, every-where mottled with brown and reddish pigmentary spots, which, however, do not form any distinctly defined patches. Length of adult female 12 mm.

Remarks. — Though very like the preceding form in its general appearance, this new species is, on closer inspection, at once distinguished by several well-marked characteristics; thus, by the very short rostral projection, the considerably smaller size of the 4th pair of coxal plates, the regular oval form of the basal joint of the 2 last pairs of pereiopoda, and finally, by the not produced last pair of epimeral plates of metasome, and their very different armature.

Occurrence. — It is only recently that I have been aware of this species, several specimens of which were collected by me, long ago, off the west coast of Norway, but at that time confounded with *St. inflatus*. In later years I have observed it off the Nordland coast, at Tjotø, and in the

Trondhjemsfjord. As a rule, it occurs together with *St. inflatus*, but in one place on the Trondhjemsfjord, at Rodbjerget, I found it unmingled with the former, and in great abundance among the roots of *Lophelia prolifera.*

Gen. 2. Stegocephaloides, G. O. Sars, n.

Syn: Stegocephalus, Boeck (part).

Body still more robust and compact than in the preceding genus, with boldly curved back, which is nearly perpendicularly deflexed in front. Cephalon and coxal plates about as in that genus, though the 4th pair of the latter are still larger, and have the distal edge angularly bent. Eyes wanting. Antennæ comparatively short, and subequal in length, the superior ones, however, much stronger than the inferior, with the peduncle somewhat flattened, and the flagellum only composed of 4 articulations, the 1st of which is very large, and densely clothed with fascicles of sensory bristles, the last very narrow, spiniform. Oral parts scarcely differing essentially from those in *Stegocephalus.* Gnathopoda subequal, both as to size and structure, propodos in both oblong, tapering distally, dactylus very short. Penultimate pair of pereiopoda of same structure as the antepenultimate ones, the basal joint being in both narrow linear, not laminarly expanded. Last pair of pereiopoda considerably shorter than the preceding pairs, and having the basal joint very large and laminar, forming inferiorly a deflexed angular lobe. Uropoda and telson about as in *Stegocephalus*, though the last pair of the former have the rami quite naked.

Remarks. — The value of this new genus may perhaps be questioned, since there is no essential difference to be found in the structure of the oral parts from those in the genus *Stegocephalus.* I have, however, found it convenient to establish this genus, as there are at least 2 species which show the very same essential differences from *Stegocephalus.* These differences chiefly consist in a somewhat different structure of the superior antennæ, the subequal gnathopoda, and the different aspect of the penultimate pair of pereiopoda, the basal joint of which is not laminarly expanded but narrow linear, as with the antepenultimate pair. The genus comprises, as yet, 2 distinct species, to be described in the sequel.

3. **Stegocephaloides christianiensis,** Boeck.

(Pl. 70, fig. 2).

Stegocephalus christianiensis, Boeck, Crust. amphip. bor. & arctica p. 48.

Body short and stout, with broadly vaulted back. Cephalon forming in front a very short rostral projection, lateral corners produced to an acute point. Coxal plates rather deep, 4th pair very large, nearly as broad as they are deep, posterior expansion fully encompassing the succeeding pair inferiorly, and narrowly truncated at the tip, distal edge forming inferiorly an abrupt, nearly angular curve. Last pair of epimeral plates of metasome somewhat produced at the lateral corners, tip minutely bidentate. Superior antennæ with the 1st joint of the peduncle twice the length of the other 2 combined, flagellum half as long again as the peduncle, with the 1st joint very large and laminar, longer than the 2 succeeding joints combined, accessory appendage small, scarcely attaining half the length of the 1st joint of the flagellum. Inferior antennæ with the 2 last joints of the peduncle about equal-sized. Gnathopoda nearly exactly alike, propodos in both longer than the carpus. Last pair of pereiopoda with the basal joint about the length of the remaining part of the leg, posterior edge serrated, and strongly curved at the middle, deflexed lobe obtusely pointed, and scarcely reaching beyond the meral joint, propodos rather elongated, about the length of the 2 preceding joints combined. Telson oblong oval, but slightly tapering distally, cleft nearly extending to the middle. Colour dark greenish brown from numerous pigmentary spots, mostly crowded together into angular patches alternating with each other, and thus giving the body a peculiar tessellated appearance. Length of adult female 7 mm.

Remarks. — The present species, first described by Boeck, and referred by him to the genus *Stegocephalus*, may be regarded as the type of the present new genus. It is readily recognized, when alive, by its dark greenish brown colour, and by the peculiar regular manner in which the pigment is arranged.

Occurrence. — Off the south and west coast of Norway, this species is by no means rare in moderate depths, from 20 to 100 fathoms, occurring in some places, even in great abundance. It extends northwards along the Nordland coast, at least to the Lofoten isles.

Distribution. — Bohuslän (Malm); Stat. 137 of the Norwegian North Atlantic Expedition (a few specimens, more than twice the usual size, perhaps belonging to a nearly allied new species).

4. **Stegocephaloides auratus,** G. O. Sars.

(Pl. 70, fig. 3).

Stegocephalus auratus, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 86, Pl. 3, fig. 8.

Body still shorter and more pulpy than in the preceding species. Cephalon with a very short and obtuse rostral projection, lateral corners somewhat produced, and narrowly rounded at the tip. Coxal plates very large; 4th pair nearly twice as deep as the corresponding segment, its depth much greater than the breadth, distal edge forming inferiorly a distinct angle. Last pair of epimeral plates of metasome somewhat produced at the lateral corners, tip minutely serrated. Antennæ about as in the preceding species, saving that the 1st joint of the flagellum of the superior ones, is somewhat smaller, and the accessory appendage longer. Gnathopoda likewise of much the same structure. Last pair of pereiopoda considerably shorter than the preceding pair, basal joint very large, much longer than the remaining part of the leg, posterior edge evenly convex, and serrated throughout, deflexed lobe tapering to a sharp point which reaches almost to the end of the carpal joint, propodos shorter than the 2 preceding joints combined. Telson subtriangular, outer part considerably narrowed, cleft extending beyond the middle. Body semipellucid, with a broad orange-coloured band, occupying the greater part of the mesosome and corresponding coxal plates. Length of adult female scarcely exceeding 5 mm.

Remarks. — Though very nearly allied to *St. christianiensis*, this species, when alive, is at once distinguished by the very different colouring of the body. It is moreover of much smaller size, and has the 4th pair of coxal plates considerably deeper in proportion to their breadth, and the last pair of pereiopoda somewhat different in shape.

Occurrence. — The species seems to be very rare off the coast of Norway. I have only found it in a few places, viz., at Sunde in the Hardangerfjord, at Magerø, west coast of Norway, and at Bejan in the outer part of the Trondhjemsfjord. It occurred in all the localities, quite solitary in depths varying from 80 to 200 fathoms. Out of Norway, it has not yet been recorded.

Gen. 3. **Aspidopleurus,** G. O. Sars, n.

Body somewhat more slender than in the 2 preceding genera, with the back less strongly curved. Cephalon and the 3 anterior pairs of coxal plates about as in *Stegocephalus.* Fourth pair of coxal plates of enormous size, posterior expansion very large and broad, rounded at the tip, and completely encompassing the 2 succeeding pairs inferiorly. Last pair of epimeral plates subtruncated at the lateral corners. Eyes wanting. Antennæ nearly as in *Stegocephalus*, subequal in length. Epistome projecting in front as a rounded compressed lobe. Anterior lip but very slightly incised at the tip; posterior lip narrower than in the preceding genera. Mandibles less strong, with the cutting edge narrower, and less coarsely dentate. First pair of maxillæ with the basal lobe rather large, but narrower than in *Stegocephalus*, and setous only in its outer part, palp extremely small, not reaching to the end of the masticatory lobe, but distinctly biarticulate. Second pair of maxillæ very large, inner lobe considerably prolonged, and somewhat expanded distally, outer lobe narrow linear, and wide apart, articulated to a kind of peduncle originating from the basal part, apical spines very slender and elongated, each terminating with a hooked bidentate expansion. Maxillipeds with the basal lobe rather narrow, and obliquely truncated at the tip, masticatory lobe large, reaching beyond the antepenultimate joint of the palp, the latter joint produced at the end interiorly, to a digitiform projection. Anterior gnathopoda somewhat stronger than the posterior, but otherwise of much the same structure. Anterior pairs of pereiopoda very powerful, with strongly curved, hook-like dactylus. Basal joint of the penultimate pairs of pereiopoda narrow linear, that of last pair laminarly dilated. Uropoda and telson nearly as in *Stegocephaloides*.

Remarks. — The present new genus is founded upon the form previously described by the author, as *Stegocephalus gibbosus*. On a closer anatomical examination, I have found this form to differ from the genus *Stegocephalus*, so markedly in several essential points, especially in the structure of the oral parts, as more properly to be regarded as the type of a separate genus. Besides the species described below, the *Stegocephalus Kessleri* of Stuxberg (= Cancer ampulla Phipps) most probably belongs to the same genus.

5. **Aspidopleurus gibbosus**, G. O. Sars.

(Pl. 71, fig. 1).

Stegocephalus gibbosus, G. O. Sars, Oversigt af Norges Crustaceer, 1, p. 85, Pl. 3, fig. 7.

Body somewhat slender, as compared with the other forms of this family, back evenly curved and less abruptly deflexed in front. Cephalon without any distinct rostral projection, lateral corners scarcely projecting, and nearly rectangular. First segment of mesosome but little longer than the succeeding ones. Anterior pairs of coxal plates nearly twice as deep as the body. Fourth pair fully twice as broad as the 3 preceding pairs combined, inferior edge straight and horizontal, posterior expansion broadly rounded at the tip. Last segment of metasome produced at the end dorsally to a gibbous projection, pointed at the tip; epimeral plates of same segment nearly transversely truncated at the lateral corners, superior angle acutely produced, inferior nearly right. Superior antennæ with the 1st joint of the peduncle scarcely longer than the other 2 combined, flagellum half as long again as the peduncle and composed of 6 articulations, the 1st of which is the largest, though scarcely as long as the 2 succeding ones combined; accessory appendage very small. Inferior antennæ about the length of the superior, last joint of the peduncle somewhat larger than the penultimate one. Gnathopoda with the propodos rather narrow, tapering distally, and scarcely longer than the carpus. Last pair of pereiopoda considerably shorter than the preceding pair, basal joint not attaining the length of the remaining part of the leg, oblong in form, slightly expanding distally, infero-posterior corner evenly rounded off. Last pair of uropoda with the rami lanceolate and unarmed. Telson oval in form, but little longer than it is broad at the base, cleft somewhat open and not extending to the middle. Colour uniformly milk-white, without any pigmentary markings. Length of adult female 8 mm.

Remarks. — In its general habitus, the present species shows an unmistakable resemblance to the arctic form figured by Dr. Stuxberg as *Stegocephalus Kessleri*, and I am therefore disposed to regard both as congeneric. The Norwegian species is however easily distinguishable from that form, not to speak of its far inferior size, by the want of any distinct rostral projection, by the peculiar gibbous prominence of the last segment of metasome and the apparently different form of the epimeral plates of same segment; finally, by a somewhat deviating shape of the 4th pair of coxal plates and of the last pair of pereiopoda. From the other Norwegian Stegocephalidæ it is moreover readily recognized, when alive, by the uniformly milk-white body.

Occurrence. — I first detected this pretty form at Folgerø, west coast of Norway, where a few specimens were taken from a depth of 120 fathoms, among living *Lophelia prolifera.* Quite recently I have met with the same form in the Trondhjemsfjord, at Rodbjerget, under quite similar circumstances. Out of Norway it has not yet been recorded.

Gen. 4. **Andania,** Boeck, 1870.

Body short and pulpy, with broadly vaulted back, and less firm integuments than in the preceding genera. Cephalon without any distinct rostral projection, lateral corners somewhat projecting. Anterior pairs of coxal plates less deep than in the other Stegocephalidæ, and rapidly increasing in size posteriorly, 4th pair much the largest, though not fully encompassing the succeeding pair inferiorly. Eyes distinct, but without any trace of visual elements. Antennæ subequal in length, flagellum of the superior ones rather slender. Epistome rounded in front. Anterior lip small and but sligthly sinuated at the tip; posterior lip with the lateral lobes narrowly rounded, with only a very small dentiform projection on the distal edge. Mandibles extremely short and stout, cutting edge straight and simple, without any trace of teeth. First pair of maxillæ with the basal lobe rather broad, and densely setous at the edge, masticatory lobe rounded at the tip, and armed with strong denticulated spines, palp well-developed, distinctly biarticulate, with the terminal joint rather large, slightly dilated distally, and armed at the tip with short spines. Second pair of maxillæ much smaller than the 1st pair, inner lobe short and broad, strongly incurved, and having a double series of ciliated setæ on the edge, outer lobe comparatively small, sublinear, apical spines simple, setiform. Maxillipeds rather strong, basal lobe obliquely truncated at the tip, masticatory lobe not very large, rounded, with a series of curved spinules on the inner edge, palp robust, rapidly tapering distally. Gnathopoda rather dissimilar, the anterior ones being much stronger than the posterior, which are very slender. Penultimate pair of pereiopoda with the basal joint laminarly expanded. Last pair of pereiopoda somewhat shorter than the preceding pair, basal joint very large and laminar, meral joint comparatively small. Last pair of uropoda with the rami narrow mucronate and unarmed, outer ramus distinctly biarticulate. Telson very small, triangular, entire.

Remarks. — In the restriction in which the genus is here taken, it is chiefly distinguished by the structure of the mandibles, the cutting edge of which is quite unarmed, by the well-developed palp of the 1st pair of maxillæ, and by the basal joint of the penultimate pair of pereiopoda being laminarly expanded. It contains as yet but one species to be described in the sequel; for none of the other forms referred to this genus by Boeck and other authors, agrees with the type species in the features mentioned above.

6. **Andania abyssi,** Boeck.

(Pl. 71 fig. 2, Pl. 72, fig. 1).

Andania abyssi, Boeck Crust. amphip. bor. & arctica, p. 49.

Body short and tumid, with the back boldly curved in front. Cephalon rather deep, lateral corners forming evenly rounded lobes projecting between the 2 pairs of antennæ. First segment of mesosome nearly as long as the 2 succeeding ones combined. First pair of coxal plates triangular in form, scarcely deeper than they are broad at the base, and much lower than the corresponding segment; the 2 succeeding pairs rapidly increasing in depth and very obliquely truncated at the tip; 4th pair obliquely quadrangular, deeper than they are broad, posterior expansion rather short, and obtusely rounded at the tip. Last pair of epimeral plates of metasome somewhat produced at the lateral corners, but without any teeth or serrations. Eyes very conspicuous, consisting, on each side, of an irregularly quadrangular patch of a milky white pigment. Superior antennæ with the 1st joint of the peduncle rather large, somewhat flattened, and nearly twice as long as the other 2 combined, flagellum fully twice the length of the peduncle, strongly attenuated, and composed of 5 articulations, the 1st of which about equals in length the 2 succeeding ones combined, terminal joint very narrow, spiniform; accessory appendage linear, fully as long as the 1st joint of the flagellum. Inferior antennæ scarcely longer than the superior, but considerably more slender, last joint of the peduncle much longer than the penultimate one Anterior gnathopoda with the propodos oblong oval, and about the length of the 2 preceding joints combined. Posterior gnathopoda much more elongated than the anterior, propodos narrow linear and considerably longer than the 2 preceding joints combined, inferior edge provided with numerous fascicles of short setæ. Penultimate pair of pereiopoda with the basal joint oblong oval, evenly rounded at the infero-posterior corner, propodal joint very slender, about the length of the 2 preceding joints combined. Last pair of pereiopoda with the basal joint very large, much longer than the remaining part of the leg, oval in form, with the posterior edge evenly curved and distinctly serrated throughout, deflexed lobe rather short and narrowly rounded at the tip; meral joint scarcely larger than the carpal one. Last pair of uropoda with the rami shorter than the basal part, terminal joint of the outer ramus comparatively short. Telson very small, triangular, about as long as it is broad at the base, tip pointed, entire. Colour a more or less dark brownish grey, with slight transverse bands of a darker hue, composed of numerous small pigmentary spots, partly of a dark greenish colour. Length of adult female 7 mm.

Remarks. — This is the form, which Boeck regards as the type of his genus *Andania*, and his generic diagnosis agrees pretty well with this species, but not with the other form he comprises in the same genus. When alive, this form is at once recognized by the very conspicuous milk-white eyes, and the dark greyish colour of the body.

Occurrence. — The species is a true deep water form, only occurring in greater depths, from 200 to 400 fathoms. I have met with it in several places off the west coast of Norway, and northwards to the Lofoten Isles, as also in the Trondhjemsfjord. Boeck records it also from Christianiafjord.

Disribution. — Outside the great fishing banks of the Norwegian coast (Norw. North Atlantic Exped.).

Gen. 5. **Andaniopsis,** G. O. Sars, n.

Syn: Andania, Boeck (part).

Form of body about as in the preceding genus. Cephalon rather short, with the lateral corners but little projecting. Coxal plates, comparatively, somewhat deeper than in *Andania;* 4th pair rather broad, fully encompassing the succeeding pair inferiorly. Eyes distinct, though rather small. Antennæ subequal in length, flagellum of the superior ones only composed of 4 articulations. Epistome rounded in front. Anterior lip distinctly bilobed. Mandibles nearly of same shape as in *Andania*, but with the cutting edge minutely dentate. First pair of maxillæ comparatively less strong, masticatory lobe rather narrow, palp very small, uniarticulate, not reaching to the end of the former. Second pair of maxillæ nearly of same structure as in *Andania*. Maxillipeds with the basal lobe well-developed, and transversely truncated at the tip, masticatory lobe rather large, obliquely oval, and finely spinulose inside, palp very slender. Gnathopoda nearly exactly alike, both as to size and structure, propodos in both rather narrow, tapering distally, dactylus short and smooth. Penultimate pair of pereiopoda with the basal joint narrow, linear. Last pair of pereiopoda much smaller than the preceding pairs, basal joint laminarly expanded, meral joint very large and produced at the infero-posterior corner. Uropoda and telson nearly as in the preceding genus.

Remarks. — I have found it necessary to establish this new genus in order to include the form described by Boeck as *Andania nordlandica*. The closer anatomical examination of this form has indeed shown it to differ from the type of the genus *Andania* in some characteristics apparently of generic value. Thus the mandibles, though being otherwise rather similar, have the cutting edge not, as in that genus, simple, but minutely denticulate, and the palp of the 1st pair of maxillæ is far less developed, the maxillipeds less robust; finally the basal joint of the penultimate pair of pereiopoda is narrow linear, as with the preceding pair. The Challenger species of *Andania*, described by the the Rev. Mr. Stebbing, agree with the present genus in the poor development of the palp of the 1st pair of maxillæ, but seem in other respects to differ so essentially from the nothern forms, as perhaps more properly to be referred to one or more distinct genera.

7. **Andaniopsis nordlandica**, (Boeck).

(Pl. 72, fig. 2).

Andania nordlandica, Boeck, Crust. amph. bor. & arctica, p. 49.

Body short and compact, quite smooth, with broadly vaulted back. Cephalon without any distinct rostral projection, lateral corners nearly rectangular. First segment of mesosome scarcely attaining the length of the 2 succeeding ones combined. First pair of coxal plates oblong triangular, much deeper than they are broad at the base; the 2 succeeding pairs rather narrow and obliquely truncated at the tip; 4th pair nearly as broad as they are deep, inferior edge strongly curved in the middle, posterior expansion rather large, and blunted at the tip. Last pair of epimeral plates of meta some scarcely produced at the lateral corners, which are nearly rectangular. Eyes narrowly oblong, tapering above, white, with a reddish tinge in their inferior part. Superior antennæ with the 1st joint of the peduncle somewhat longer than the other 2 combined, flagellum scarcely twice as long as the peduncle, 1st joint very large, nearly as long as the other 3 combined, accessory appendage scarcely exceeding half the length of the 1st joint of the flagellum. Inferior antennæ about the length of the superior, but much more slender, last joint of the peduncle somewhat shorter than the penultimate one, flagellum about the length of the peduncle. Gnathopoda of moderate size, propodos fully as long as the 2 preceding joints combined. Penultimate pair of pereiopoda with the basal joint but very slightly dilated in its distal part, meral and propodal joints about equal in length. Last pair of pereiopoda scarcely more than $^2/_3$ as long as the preceding pair, basal joint oval in form, and about the length of the remaining part of the leg, deflexed lobe rather large and obtusely pointed at the tip, meral joint much expanded, fully as long as the 2 outer joints combined, and jutting out posteriorly to a pointed lobe, reaching nearly to the end of the carpal joint. Last pair of uropoda with the rami longer than the basal part, terminal joint of the outer ramus about as long as the basal one. Telson scarcely as long as it is broad at the base, tip obtusely pointed, entire. Colour yellowish mottled with dark brownish and reddish pigmentary spots, forming more or less distinct, transversal bands. Length of adult female scarcely exceeding 5 mm.

Remarks. — As above stated, this form was referred by Boeck to the genus *Andania*, though it differs materially in some characteristics from the diagnosis of the genus given by that author, for which reason I have here regarded it as the type of a separate genus. It is easily recognized from the other northern Stegocephalidæ especially by the structure of the last pair of pereiopoda.

Occurrence. — The species is by no means infrequent off the west coast of Norway, in moderate depths, from 20 to 100 fathoms, occurring, in some places, even in great abundance. It extends northwards along the Nordland coast, at least to Lofoten. Out of Norway, it has not yet been recorded.

Gen. 6. **Andaniella,** G. O. Sars, n.

Body short and compact, with rather firm integuments. Cephalon comparatively small, without any distinct rostral projection. Coxal plates rather large and deep, 4th pair very broad, and quite encompassing the succeeding pair inferiorly. Eyes wholly wanting. Superior antennæ about as in *Andaniopsis;* inferior ones much shorter and stouter. Epistome produced in front to an accuminate lappet. Anterior lip rather large, and distinctly bilobed; posterior lip with the lateral lobes rather narrow, and blunted at the tip. Mandibles strong, with the cutting edge coarsely dentate, as in the genus *Stegocephalus.* First pair of maxillæ with the basal lobe comparatively small, masticatory lobe, on the other hand, very large, and armed with strong denticulated spines, palp very small, uniarticulate. Second pair of maxillæ nearly as in the preceding genus, but with the outer lobe comparatively larger, and having only 4 rather coarse apical spines. Maxillipeds with the basal lobe very short, masticatory lobe, on the other hand, largely developed, reaching far beyond the antepenultimate joint of the palp, the latter extremely slender, and nearly naked. Gnathopoda comparatively more powerful than in the other Stegocephalidæ, anterior ones somewhat shorter than the posterior, dactylus in both pairs very strong and curved, armed with coarse spines. Penultimate pair of pereiopoda with the basal joint linear, not at all expanded. Last pair of pereiopoda much shorter than the preceding pairs, basal joint laminar, meral joint of moderate size. Uropoda and telson about as in the 2 preceding genera.

Remarks. — The present new genus is founded upon the form, previously described by the author as *Andania pectinata.* The closer anatomical examination of this form, instituted subsequently, has in fact, shown it to be generically distinct, differing, as it does, materially from both the preceding genera, in the structure of the oral parts. The genus comprises, as yet, but a single species.

8. **Andaniella pectinata,** G. O. Sars.

(Pl. 72, fig. 3).

Andania pectinata, G. O. Sars, Oversigt af Norges Crustaceer. I, p. 86, Pl. 3, fig 9

Body extremely short and stout, and apt to be rolled together in the form of a ball. Cephalon with the lateral corners but little projecting and nearly rectangular. First segment of mesosome scarcely longer than the succeeding ones. First pair of coxal plates nearly twice as deep as they are broad at the base; the 2 succeeding pairs rather narrow, and transversely truncated at the tip; 4th pair considerably exceeding in breadth the 3 preceding pairs combined, posterior expansion rather large, and obtusely rounded at the tip, distal edge forming a rather slight, and quite even curve. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, posterior edge somewhat flexuous Superior antennæ with the peduncle rather strong and somewhat flattened, its 1st joint fully twice as large as the other 2 combined, flagellum half as long again as the peduncle, with the 1st joint very large, longer than the remaining three combined, accessory appendage about half the length of the 1st joint of the flagellum. Inferior antennæ considerably shorter than the superior, last joint of the peduncle much smaller than the penultimate one, flagellum scarcely exceeding the length of the former. Gnathopoda with the propodos about the length of the 2 preceding joints combined, that of the anterior ones somewhat dilated in the middle, of the posterior, nearly linear, dactylus in the former armed with 4, in the latter with 2 coarse spines. Last pair of pereiopoda with the basal joint oval, scarcely exceeding in length the remaining part of the leg, posterior edge smooth, deflexed lobe evenly rounded and reaching about to the middle of the meral joint, the latter much shorter than the 2 outer joints combined, and but slightly produced at the infero-posterior corner. Last pair of uropoda with the rami much shorter than the basal part, outer ramus the longer. Telson nearly twice as broad as it is long, tip obtusely pointed and entire.

Colour yellowish, mottled with numerous light brownish pigmentary spots. Length of adult female scarcely exceeding 4 mm.

Remarks. — The present form, the type of the genus, certainly bears some resemblance to *Andania nordlandica* in its general appearance, but may, on closer examination, be readily recognized by its still more compact body, and by the rather different structure of the last pair of pereiopoda.

Occurrence. — I first detected this form in the Varangerfjord, at Vadsø, and have subsequently also found it in a few other places off the west coast of Norway, as also in the Trondhjemsfjord. It occurs, as a rule, in moderate depths, from 20 to 60 fathoms, where the bottom is stony and overgrown with Hydroida and Polyzoa. It has also been found semiparasitic in the branchial cavity of Ascidæ (Molgula).

Distribution. — Greenland (Hansen); Spitsbergen (Aurivillius).

Fam. 7. Amphilochidæ.

Body, as a rule, rather short and stout, sometimes exhibiting a remote resemblance to that of the *Stegocephalidæ.* Sexual difference, as in the latter, very slight. Cephalon of moderate size, more or less produced in front. Coxal plates generally rather large, 4th pair the largest, and angularly produced posteriorly. Metasome and urosome well-developed. Antennæ comparatively short, subequal in length, or the inferior ones a little longer, accessory appendage generally wanting, or very small. Anterior lip more or less distinctly lamellar, and incised at the tip; posterior lip with the inner lobes very small, or quite wanting. Mandibles of normal appearance, molar expansion more or less developed, palp distinct and 3-articulate. Maxillæ comparatively small, and of the usual structure. Maxillipeds with the masticatory lobe more or less expanded, palp generally rather elongated, with the terminal joint unguiform. Gnathopoda of different structure in the different genera, either simple, or distinctly subcheliform, the posterior ones generally the larger. Pereiopoda normal and, as a rule, very slender. Branchial lamellæ simple; incubatory lamellæ large and edged with long setæ. Uropoda rather unequal in size, the penultimate pair being much shorter than the others, last pair more or less differing in stucture from the 2 preceding pairs. Telson unarmed, entire or cleft.

Remarks. — The present family was justly placed by Boeck next to the *Stegocephalidæ*, with which it in fact shows some characteristics in common, though in other respects it differs very markedly. Both families were, however, regarded by the said author as merely subfamilies, ranging under his great family *Leucothoidæ*. I am not disposed to adopt his view as to such a systematic arrangement, and find it much more convenient to keep it as a distinct family. Besides the 3 genera comprised in this family by Boeck, 3 other genera are here added, 2 of which are now, for the first time, established. A 7th genus has been recently established by the Rev. Mr. Stebbing, under the name of *Cyproidia*.

Gen. 1 **Astyra**, Boeck, 1870.

Body comparatively stout, and somewhat inflated in its anterior part, exhibiting some resemblance to that of the *Stegocephalidæ*. Integuments thin and pellucid. Cephalon rather deep, and but very slightly produced in front, lateral corners nearly obsolete, postantennal corners, on the other hand, distinctly projecting. Coxal plates of moderate size, 1st pair well-developed, and larger than the 2 succeeding pairs, 4th pair obliquely truncated at the tip, and forming posteriorly a projecting angle. Metasome rather powerful, urosome well-developed. Eyes wanting. Antennæ comparatively strong, and subequal in length, peduncle of the superior ones short and thick, bearing at the end, inside, a very small accessory appendage, flagellum somewhat thickened at the base, and, like that of the inferior ones, composed of numerous short articulations. Buccal mass strongly projecting inferiorly. Anterior lip rounded, and but very slightly emarginated at the tip; posterior lip with the lateral lobes widely apart, and having between them a pair of very small contiguous inner lobes. Mandibles of moderate size, cutting edge rather projecting, and somewhat expanded, being divided into coarse, unguiform teeth, that of the left mandible bearing a small, likewise dentated, secondary lamella, molar expansion small, lappet-shaped, palp well-developed, setous, with the 2nd joint much the largest. First pair of maxillæ with the masticatory lobe comparatively short, and transversely truncated at the tip, basal lobe of moderate size, and setous at the tip, palp rather large, distinctly biarticulate, outer joint scarcely expanded distally, with the tip truncated, and armed with a number of strong spines. Second pair of maxillæ with both lobes short and broad, bearing a dense series of ciliated setæ. Maxillipeds well-developed, basal lobes of moderate size, masticatory lobes very large, laminar, and armed on the inner edge with numerous short spines, palp comparatively short and stout, and but slightly projecting beyond the masticatory lobe. Gnathopoda rather feeble in structure, subequal and scarcely subcheliform. Pereiopoda not very slender, the 3 posterior pairs much larger than the 2 anterior, and subequal both in size and structure, basal joint not very much expanded. Uropoda with the rami narrowly lanceolate, and densely edged with short spines, last pair having the basal part very short and thick. Telson comparatively small, and deeply cleft.

Remarks. — This genus, established by Boeck, was only with some doubt referred by him to the *Amphilochidæ*, and, according to this author, it should perhaps more properly be regarded as the type of a separate subfamily, showing some relations to the *Pardaliscidæ*. In my opinion, the genus has also some apparent affinity to the *Stegocephalidæ*, and for this cause, I have placed it at the head of the present family, instead of at the end, as done by Boeck.

1. **Astyra abyssi,** Boeck.

(Pl. 73).

Astyra abyssi, Boeck, Crust. amphip. bor. & arct. pag. 53.

Body robust, with broadly vaulted back, and quite smooth. Cephalon about the length of the 1st segment of mesosome, front produced to a very short and blunt rostral projection, lateral corners forming a slight, rounded expansion of the anterior edge, postantennal corners jutting out in the form of narrow, linguiform, deflexed lobes. First segment of mesosome somewhat larger than the 3 succeeding ones. First pair of coxal plates rather expanded in their outer part, and nearly transversely truncated at the end; the 2 succeeding pairs much narrower, and tapering distally; 4th pair about twice the breadth of the 3rd, tip bluntly pointed, posterior projection about in the middle; 5th pair rounded quadrangular, and but slightly bilobed at the end. Metasome exceeding half the length of the anterior division of the body, epimeral plates rather large, those of last pair nearly rectangular. First segment of urosome having dorsally a deep, saddle-shaped depression. Superior antennæ about the length of the cephalon and the 4 anterior segments of mesosome combined, 1st joint of the peduncle somewhat flattened, and about as long as the other 2 combined, flagellum more than twice the length of the peduncle, and composed of 20—30 articulations, the inner of which are somewhat inflated, and provided posteriorly with transverse rows of delicate sensory hairs; accessory appendage extremely small, uniarticulate, with 2 unequal apical setæ. Inferior antennæ a little longer than the superior, peduncle rather stout, with the 2 outer joints subequal in length, and having, anteriorly, fascicles of short bristles, flagellum half as long again as the peduncle. Anterior gnathopoda a little stronger than the posterior, carpus in both rather dilated, and forming at the end, inferiorly, a rounded setous lobe, propodos somewhat shorter and much narrower, oblong in form and without any distinctly defined palm, dactylus short, spinous on the inner edge. Anterior pairs of pereiopoda comparatively small, scarcely exceeding the length of the gnathopoda; the 3 posterior pairs much more elongated, and edged on both margins with short spines, basal joint narrow quadrangular, having outside an elevated diagonal ridge, dactylus slender lanceolate, spinous at the edges. Last pair of uropoda somewhat projecting beyond the 1st pair, basal part very short, both rami lanceolate, uniarticulate, with small marginal spines, the inner a little longer than the outer, and having a longitudinal ridge. Telson but little longer than it is broad at the base, cleft extending somewhat beyond the middle, and gradually widening distally, terminal lobes divaricate, and obscurely crenulated at the edges. Colour uniformly pale yellowish. Length of adult female reaching 8 mm.

Remarks. — This is the only, as yet, known species of the genus and may easily be recognized from the other *Amphilochidæ* both by its general habitus, and by the structure of the several appendages.

Occurrence. — I have met with this form in several places off the west coast of Norway, thus in the Hardangerfjord, and at Christiansund, as also in the Trondhjemsfjord. It extends northwards to the Lofoten Isles, and occurs also off the Finmark coast as far east as Vadsø, where I collected it many years ago, in considerable numbers. It is a true deep water form, occurring, as a rule, only in depths from 100 to 300 fathoms.

Distribution. — Stat. 87 of the Norwegian North Atl. Exp., lying outside the great fishing banks of the west coast of Norway.

Gen. 2. **Amphilochus,** Sp. Bate, 1862.

Body comparatively short and stout, somewhat compressed, with rather firm integuments. Cephalon produced in front to a curved acuminate rostrum, lateral corners distinctly projecting, postantennal corners obsolete. First pair of coxal plates very small and partly concealed, the 3 succeeding pairs large and deep, 4th pair by far the largest, transversely truncated at the tip, and deeply emarginated posteriorly in their upper part; 5th pair obliquely oval, bilobed, the posterior lobe the deeper. Metasome of moderate size. Eyes distinct. Antennæ comparatively small, with the peduncles rather elongated, and the flagella only composed of a restricted number of articulations; the superior ones without any accessory appendage, and larger in male than in female. Buccal mass not very projecting, and concealed by the 2nd pair of coxal plates. Epistome rounded in front. Anterior lip lamellar, distinctly incised at the tip; posterior lip without any inner lobes. Mandibles rather elongated, cutting edge not very expanded, and finely denticulated, having on the left mandible a distinct secondary lamella, molar expansion very small and unarmed, palp slender and nearly naked, not attaining the length of the mandible, and having the terminal joint elongated and curved. First pair of maxillæ with the masticatory lobe rather projecting, and obliquely truncated at the tip, basal lobe very small, truncated at the tip, and having only a single, minute, apical bristle, palp distinctly biarticulate, terminal joint rounded at the tip, and armed with 2 small spines outside. Second pair of maxillæ well-developed, with both lobes elongated, the outer narrower than the inner, only and setous at the tip. Maxillipeds rather large, basal lobes narrow, masticatory lobes of moderate size, reaching beyond the 1st joint of the palp, the latter elongated, setous. Gnathopoda more or less unequal, the posterior ones being the larger, both pairs distinctly subcheliform, with the propodos laminarly expanded, and provided with a distinctly defined palm, carpus produced at the end inferiorly, forming, on the posterior pair, a narrow setous lobe stretching along the hind margin of the propodos, meral joint of the posterior pair produced, inferiorly, to a small dentiform projection. Pereiopoda very slender and elongated, subequal in length, basal joint of the 3 posterior pairs large and laminar. Second pair of uropoda rather small, last pair more or less elongated, with the basal part laminarly compressed and longer than the rami, which are simple. Telson conically tapering, entire.

Remarks. — In the restriction here adopted, this genus is chiefly characterised by the structure of the oral parts, and partly also by that of the gnathopoda. Of the 4 species of *Amphilochus* described by Boeck, only 2 ought to be referred to this genus, the other 2 forming types of separate, nearly-allied genera. Besides the 2 species described below, the *A. oculatus* of Hansen and *A. marionis* of Stebbing would seem, in fact, to belong to the present genus.

2. **Amphilochus manudens,** Sp. Bate.

(Pl 74).

Amphilochus manudens, Sp. Bate, Catal. Amph. Brit. Mus. p. 107, Pl. XVII, fig. 6 (male).
Syn: Amphilochus concinnus, Stebbing.
» Amphilochus Boeckii, Meinert.

Body rather high and compressed, with the back evenly rounded. Cephalon somewhat larger in male than in female, rostrum evenly curved and very acute, reaching, in female, to a little beyond the middle of the basal joint of the superior antennæ, in male, about to the end of same joint, lateral corners rather projecting, and terminating with a sharp deflexed point. Coxal plates comparatively much lower in male than in female; 1st pair in both sexes very small, subquadrangular, anterior corner very little projecting; 2nd pair nearly transversely truncated at the tip, distal edge of this and the succeeding pair coarsely dentated; 4th pair denticulated both on the inferior and posterior edges, and in female considerably more than twice as deep at the corresponding segment; 5th pair about half as deep, and rather oblique, posterior lobe truncated at the tip. Metasome in female about half as long as the anterior division of the body, in male considerably more, last pair of epimeral plates somewhat produced, and terminating with a small dentiform projection, posterior edge rather curved. Eyes of moderate size, rounded, with well-developed visual elements, pigment dark red. Superior antennæ in female about the length of the cephalon and the 1st segment of mesosome combined, joints of the peduncle gradually decreasing in size, 1st joint terminating with an indented margin overlapping the base of the succeeding joint, flagellum scarcely more than half as long as the peduncle, and very slender, composed of about 6 articulations bearing slender sensory setæ. Same antennæ in male comparatively much larger, with the flagellum more elongated, and composed of a greater number of articulations, each bearing a pair of very long band-like sensory appendages. Inferior antennæ in female about the length of the superior, in male much shorter, penultimate joint of the peduncle longer than the last one, flagellum about half the length of the peduncle. Gnathopoda rather powerful, the posterior ones considerably larger than the anterior, propodos in both much longer than the 3 preceding joints combined, considerably expanded distally, and produced in front, just above the insertion of the dactylus, to a conically pointed process more projecting on the posterior pair, palmar edge obliquely curved, and very finely and regularly dentated, dactylus extremely slender, minutely spinulose in its proximal part, carpal process of the posterior pair very narrow, setous on the inferior edge, and reaching to the palm. Basal joint of the 3 posterior pairs of pereiopoda oval in form, and finely serrulated on the posterior edge, that of last pair somewhat larger and broader than of the others. Last pair of uropoda rather elongated, considerably projecting beyond the others, rami very narrow, with scattered spinules. Telson scarcely more than half as long as the basal part of the last pair of uropoda, and quite simple, conically pointed Colour somewhat varying, now very dark from large irregular patches of a brownish violaceous hue, now somewhat lighter, with reddish shadows. Length of adult female reaching 5 mm, of male 4 mm.

Remarks. — In spite of the different view supported by Dr. Hansen and Prof. Meinert, I cannot but believe that the above described species, which most assuredly is that examined by Boeck, is in fact identical with the form originally described by Sp. Bate under the above name. The solitary specimen examined by this author seems to have been an adult male, to judge from the unequal-sized antennæ. The apparently different structure of the anterior gnathopoda, as represented on the figure given by Sp. Bate, may easily, as has also been suggested by the Rev. Mr. Stebbing, be explained as resulting from an imperfect examination, these limbs having in all probability been drawn in a somewhat oblique position, without having been isolated. Otherwise there is no essential difference to be found, as seen by comparing the figure of the male here given with the figure in Sp. Bate's work. I am also convinced that the form described by the Rev. Mr. Stebbing as *A. concinnus* is the same species. The dactylus of the gnathopoda appears, it is true, at first sight, quite smooth, as represented in the figure given by Boeck, but by applying a sufficient magnifying power, it is, in fact, found to be provided with very fine hairs or denticles in its proximal part.

Occurrence. — The species is by no means rare off the coast of Norway, occurring, as a rule, in moderate depths, from 40 to 100 fathoms, especially between Hydroida and the roots of corals. I have found it in numerous places, from the Christianiafjord up to Vadsø.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux), Greenland (Hansen).

3. **Amphilochus tenuimanus,** Boeck.

(Pl. 75, fig. 1).

Amphilochus tenuimanus, Boeck, Crust. amph. bor. & arct. p. 51.

Very like the preceding species in its general appearance, though perhaps even somewhat stouter. Cephalon comparatively larger, and evenly vaulted above, rostrum reaching nearly to the tip of the basal joint of the superior antennæ, lateral corners rather projecting, though somewhat blunted at the tip. Coxal plates very deep; 1st pair somewhat larger than in the preceding species, and obliquely oval in form, anterior corner somewhat produced and bluntly pointed; 2nd pair obliquely truncated at the tip, distal edge of this and the 2 succeeding pairs scarcely denticulated; 5th pair comparatively smaller and less oblique than in the type species. Last pair of epimeral plates of metasome less produced at the lateral corners, and nearly rectangular, without any dentiform projection. Eyes very small, rounded, with imperfectly-developed visual elements, pigment light red, with a whitish coating. Superior antennæ nearly as in *A. manudens;* inferior ones comparatively shorter and stouter, not attainning the length of the superior. Gnathopoda not nearly so powerful as in that species, and but slightly unequal, propodos in both pairs scarcely longer than the 2 preceding joints combined, and of regular triangular form, gradually expanded distally, and nearly transversely truncated at the end, which does not form any projecting angle in front of the dactylus, palm nearly straight, and somewhat irregularly denticulated, with a few small bristles, dactylus not very elongated, and finely spinulose inside, carpal process of the posterior pair not reaching to the palm. Pereiopoda almost exactly as in *A. manudens.* Last pair of uropoda, on the other hand, much shorter, scarcely reaching beyond the 1st pair, basal part but little longer than the rami, the latter simple, without any marginal spinules. Telson much elongated, reaching beyond the basal part of the last pair of uropoda, and gradually tapering from the base to the pointed tip. Colour pale yellowish, with irregular light red patches extending down the coxal plates. Length of adult female 4 mm.

Remarks. — This species, established by Boeck, was rather imperfectly, and partly incorrectly, described in the posthumous work of that author, without any illustrating figures. Fortunately there is in onr university collection a specimen, though badly preserved, which was determined by Boeck as above, and which has thus enabled me to identify his species with the form described above. It may easily be distinguished from the type species by the small, imperfectly-developed eyes, by the rather different structure of the gnathopoda, and by the relative length of the telson and the last pair of uropoda.

Occurrence. — Boeck records the species from three different localities off the west coast of Norway, viz., Hvitingsø, Mosterhavn in the Hardangerfjord, and Christiansund. I have besides met with it at Tjøtø and Selsøvik off the Nordland coast. It is a true deep-water form, only occurring in depths from 100 to 200 fathoms, especially where the deep-sea corals grow.

Distribution. — ? Cumbræ, British Isles (Robertson).

Gen. 3. **Amphilochoides,** G. O. Sars, n.

Syn: Amphilochus, Boeck (part).

Body somewhat more slender than in the preceding genus, with the coxal plates not quite so deep, otherwise of a rather similar aspect. Antennæ of much the same structure as in that genus, though the inferior ones appear somewhat longer than the superior. Anterior lip rather broad, and but slightly emarginated at the tip; posterior lip with the lateral lobes strongly inflexed, and having the outer corner rounded off. Mandibles of moderate size, cutting part about as in *Amphilochus*, molar expansion obsolete, palp comparatively large, much longer than the mandible, and nearly naked. First pair of maxillæ rather strong, masticatory lobe large, spinous at the upper corner, and exhibiting below the latter a coarsely-serrated laminar expansion, basal lobe extremely small, nearly obsolete, palp well-developed, biarticulate, last joint spathulate, and coarsely dentated on the distal edge. Second pair of maxillæ extremely minute and rudimentary, lobes mammilliform and having only a few simple hairs at the tip. Maxillipeds well-developed, basal lobes rather broad, and obtusely truncated at the tip, masticatory lobes comparatively small, not reaching to the end of the 1st joint of the palp, the latter much elongated, with the penultimate joint rather large, and somewhat dilated distally. Gnathopoda of unequal size, the posterior ones being much more poverful than the anterior, propodos in both pairs comparatively large, dilated in the middle, and having a very oblique palm, dactylus very slender, and armed on both pairs, or on the posterior pair only, with an obtuse nodiform denticle, originating at the base inside, carpus produced at the end inferiorly to a setiferous lobe, more elongated on the posterior pair, meral joint of the latter having inferiorly a tooth-like projection. Pereiopoda, uropoda and telson about as in the preceding genus.

Remarks. — The type of this new genus is *Amphilochus odontonyx* of Boeck, which, on a closer examination, I have found to differ so materially from the type species of Amphilochus, especially in the structure of the oral parts, as more properly to be generically separated. The value of this genus is still more supported by the discovery of another new species, which, though undoubtedly distinct, perfectly agrees with the type species in all essential characteristics.

4. **Amphilochoides odontonyx,** (Boeck).

(Pl. 75, fig. 2).

Amphilochus odontonyx, Boeck, Crust. amph. bor. & arct. p. 51.

Body somewhat slender, as compared with the other Amphilochidæ, and not very compressed, with the back broadly rounded. Integuments rather firm, and exhibiting a peculiar squamous sculpturing. Cephalon about the length of the first 2 segments of mesosome combined, not very deep, somewhat flattened above, rostrum rather large and strongly curved, reaching about to the end of the basal joint of the superior antennæ, lateral corners but little projecting, and nearly rectangular. First pair of coxal plates rather small, obliquely quadrangular, anterior corner tapering to an acute point; 2nd pair somewhat expanded in their outer part, distal edge transversely truncated, and slightly denticulated in its posterior part, 4th pair not quite twice as deep as the corresponding segment, but rather broad; 5th pair comparatively small. Last pair of epimeral plates of metasome produced at the lateral corners to a tooth-like projection, defined above by a distinct sinus, posterior edge strongly curved in its lower part. Eyes rather large, rounded oval, with well-developed visual elements, pigment dark red. Superior antennæ about the length of the cephalon and the 1st segment of mesosome combined, joints of the peduncle successively decreasing in size, 2nd joint produced at the end inside to an acuminate lappet, flagellum but little exceeding half the length of the peduncle, and composed of about 7 articulations. Inferior antennæ somewhat longer than the superior, last joint of the peduncle much shorter than the penultimate one, flagellum 7-articulate, and scarcely exceeding half the length of the peduncle. Anterior gnathopoda with the propodos about the length of the basal joint, oblong triangular, fully twice as long as it is broad, palm very oblique, and finely denticulated. Posterior gnathopoda much stronger, propodos exceeding the length of the basal joint, and nearly subfusiform in shape, palm much longer than the hind margin, and scarcely defined posteriorly by any distinct angle, its edge slightly curved, and finely denticulated throughout, carpal process somewhat dilated in the middle, and reaching about to the palm, dactylus in both pairs strongly curved at the base, and provided inside with a well-marked nodiform denticle, its outer part smooth and very slender. Basal joint of the 3 posterior pairs of pereiopoda very broad, especially that of the last pair, posterior edge finely serrulate. Last pair of uropoda of moderate size, scarcely reaching beyond the 1st pair, basal part somewhat longer than the rami. Telson rather large, projecting beyond the basal part of the last pair of uropoda, and gradually tapering from the base to the tip, which on the left side has a small secondary denticle. Body yellowish, mottled with reddish brown pigmentary spots, coxal plates, legs and urosome tinged with dark crimson. Length of adult female 6 mm.

Remarks. — It may perhaps be somewhat questionable, whether the form described by Boeck as *Amphilochus odontonyx* should be identified with this or the following species. Some points in his description and figures would, in fact, seem to point to a nearer relationship to the latter. As however the only specimen in our collection, determined by Boeck as above, undoubtedly belongs to the present species, I have thought it right to apply his name to the form here described.

Occurrence. — I have met with this species in a few localities off the west coast of Norway (Hardangerfjord, Aalesund, Apelvær), as also in the Trondhjemsfjord, where it occurred in one locality, at Bejan, rather abundantly. Boeck records it also from the Christianiafjord. It is found, as a rule, only in greater depths, from 50 to 150 fathoms.

Distribution — Kattegat and Skagerak (Meinert).

5. **Amphilochoides pusillus**, G. O. Sars, n. sp.

(Pl. 76, fig. 1).

Body somewhat less slender than in the preceding species, and more resembling that of the species of *Amphilochus*. Cephalon scarcely as long as the first 2 segments of mesosome combined, evenly vaulted above, rostrum not very large, only reaching a little beyond the middle of the basal joint of the superior antennæ, lateral corners somewhat produced. First pair of coxal plates bluntly rounded at the anterior corner; 2nd pair scarcely expanded in their outer part, distal edge narrowly rounded, and minutely denticulated; 4th pair fully twice as deep as the corresponding segment; 5th pair rather oblique. Last pair of epimeral plates of metasome not produced at the lateral corners, and nearly rectangular. Eyes small, rounded. Antennæ nearly as in the preceding species, though the lappet-shaped projection of the superior ones is much smaller, and the flagella of both pairs more slender, and only composed of 5 articulations. Gnathopoda comparatively less powerful, the anterior ones having the propodos much shorter than the basal joint, and scarcely twice as long as it is broad, palm nearly straight, and defined posteriorly by a distinct angle, dactylus of quite normal appearance, without any nodiform denticle at the base, but finely ciliated on the inner edge. Posterior gnathopoda much stronger than the anterior, propodos about attaining the length of the basal joint, oblong in form, palm very oblique, and defined posteriorly by an obtuse angle, its edge denticulated only in the posterior part, dactylus of exactly same structure as in *A. odontonyx*, carpal process very narrow, and reaching somewhat beyond the palm. Pereiopoda scarcely differing in structure from those in the preceding species. Last pair of uropoda reaching a little beyond the 1st pair, basal part much longer than the rami. Telson very elongated, conically tapering, tip tridentate. Colour in the living state of the animal not yet stated. Length of adult ovigerous female scarcely exceeding $2^1/_2$ mm.

Remarks. — The present new species is easily distinguishable from the preceding one, not only by its much inferior size, but also by several well-marked, structural details. Thus the form of the cephalon is rather different, as also that of the last pair of epimeral plates of metasome; moreover the gnathopoda are not nearly so powerful, and the anterior ones wholly want the nodiform denticle of the dactylus, present on both pairs in *A. odontonyx*.

Occurrence. — I have hitherto only met with this species in a single locality, viz., at Vadsø, Finmark, where it occurred rather sparingly in a depth of 30—60 fathoms, together with *Gitanopsis arctica* to be described in the sequel.

Gen. 4. **Gitanopsis,** G. O. Sars, n.

Syn: Amphilochus, Boeck (part).

Form of body about as in the preceding genus. Cephalon rather deep, and, as in most other Amphilochidæ, produced in front to a curved rostral projection. Coxal plates of moderate size, 1st pair, as a rule, less rudimentary than in the 2 preceding genera. Antennæ generally more elongated. Anterior lip about as in *Amphilochus;* posterior lip with the lobes narrowed in front, and having inside a deep incision, lateral corners narrowly exserted. Mandibles rather strong, with the molar expansion large and protruding, exhibiting the usual fluted, triturating surface, palp of moderate size, with the terminal joint elongated and slender. First pair of maxillæ of much the same structure as in *Amphilochus*, palp distinctly biarticulate, with the terminal joint narrowly rounded at the tip, and armed outside the latter with 3 short spines. Second pair of maxillæ well-developed, with the inner lobe considerably broader than the outer. Maxillipeds, as a rule, rather stout, basal lobes narrow and elongated, masticatory lobes of moderate size, reaching beyond the 1st joint of the palp, the latter generally rather robust and densely setous. Gnathopoda distinctly subcheliform, now rather strong, and of a similar structure as in *Amphilochus,* now comparatively feeble, and approaching in appearance to those in the genus *Gitana.* Pereiopoda, uropoda and telson about as in the 2 preceding genera.

Remarks. — I have found it necessary to establish this new genus, in order to comprise some species formerly referred to the genus *Amphilochus*, but very materially differing in the structure of the mandibles, which nearly agrees with that in the genus *Gitana* of Boeck. The genus contains, as yet, 3 distinct species to be described below.

6. **Gitanopsis bispinosa,** (Boeck).

Pl. 76, (fig. 2).

Amphilochus bispinosus, Boeck, Crust. amph. bor. & arct. p. 51.

Body somewhat compressed, with the back evenly vaulted in its anterior part. Cephalon scarcely longer than the first 2 segments of mesosome combined, rostral projection comparatively short and evenly curved, not reaching beyond the middle of the basal joint of the superior antennæ, lateral corners somewhat produced, but obtuse at the tip. Coxal plates not very large; 1st pair distinctly visible outside, subtriangular in form, tapering to an obtuse denticulated point; 2nd pair nearly of same breadth throughout, truncated at the tip, distal edge finely serrated; 4th pair somewhat narrowed in their outer part, and but little deeper than the corresponding segment. First and 2nd segments of metasome produced at the end dorsally to a spiniform recurved process. Last pair of epimeral plates nearly rectangular. Eyes of moderate size, rounded oval, pigment light red. Antennæ much elongated, the superior ones attaining the length of the cephalon and the first 3 segments of mesosome combined, 1st joint of the peduncle somewhat thicker, but scarcely longer, than the 2nd, flagellum nearly twice as long as the peduncle and composed of about 15 articulations, each provided at the end posteriorly with a fascicle of delicate sensory setæ. Inferior antennæ somewhat longer than the superior, and very slender the 2 outer joints of the peduncle nearly equal-sized, flagellum about the length of the latter joints combined, and composed of 15—16 articulations. Gnathopoda comparatively rather feeble in structure, and not very unequal, propodos in both oval, about twice as long as it is broad, palm very oblique, somewhat curved, and not defined posteriorly by any distinct angle, its edge having on each side numerous small denticles and stiff bristles, dactylus everywhere clothed with fine hairs, carpus scarcely narrower than the propodos, and produced at the end inferiorly to a lammellar setous lobe, somewhat larger on the posterior pair, though not quite extending to the palm, meral joint in both pairs simple, without any dentiform projection. Pereiopoda rather slender, and densely edged with fascicles of small bristles; basal joint of the 3 posterior pairs very large, especially that of the last pair. Uropoda with the rami densely spinulose, last pair reaching about as far as the 1st pair, basal part scarcely longer than the rami. Telson of moderate size, not quite extending to the end of the basal part of the last pair of uropoda, conically tapering distally. Body of whitish colour, banded with light red. Length of adult female $5^1/_2$ mm.

Remarks. — The above described form, which was referred by Boeck to the genus *Amphilochus*, may properly be regarded as the type of the present new genus. It is easily recognized by the 2 recurved dorsal processes of the metasome, from which characteristic, indeed, the specific name was derived.

Occurrence. — Though nowhere in any abundance, I have met with this form in several places, both off the south and west coasts of Norway, as also in the Trondhjemsfjord. It extends northwards to the Lofoten Isles, where I found it many years ago at the fishing place Skraaven. Boeck records it from Christianiafjord, Haugesund, Hardangerfjord and Christiansund. It occurs, as a rule, only in rather deep water, from 50 to 100 fathoms.

Distribution. — Greenland (Hansen); coast of France (Chevreux).

7. **Gitanopsis inermis**, G. O. Sars.

(Pl. 77, fig 1).

Amphilochus inermis, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 87. Pl. 3, fig 10.

Body quite smooth, and very like in its outer appearance that of the species of *Amphilochus*, though being perhaps somewhat more slender. Cephalon not fully as long as the first 2 segments of mesosome combined, rostrum strongly curved, and reaching beyond the middle of the basal joint of the superior antennæ, lateral corners but little projecting, and nearly rectangular. First pair of coxal plates very small, obliquely quadrangular in form; 2nd pair slightly expanded in their outer part, distal edge rounded and coarsely dentated, 4th pair considerably deeper than the corresponding segment, distal edge evenly curved. Last pair of epimeral plates of metasome nearly rectangular. Eyes rather large, rounded oval in form, with well-developed visual elements. Antennæ comparatively short, and subequal in length, the superior ones with the first 2 joints of the peduncle nearly of same length, flagellum much shorter than the peduncle, and composed of 6 articulations only. Inferior antennæ with the outer 2 joints of the peduncle subequal, flagellum scarcely half as long as the peduncle. Gnathopoda rather powerful, and of much the same structure as in *Amphilochus*. Anterior pair much smaller than the posterior, propodos about the length of the 3 preceding joints combined, and laminarly expanded distally, palm well-defined and somewhat oblique, its edge finely denticulated throughout, and having besides in its posterior part, on each side, 2 slender spines, carpus produced below to a somewhat curved setiferous lobe. Posterior gnathopoda nearly twice as long as the anterior, propodos very large and gradually expanding distally, palm well-defined and evenly curved, its edge finely denticulated, and having besides a dense series of small hairs, dactylus very slender and smooth, carpal process narrow, and extending almost to the palm. Pereiopoda of the usual slender form. Last pair of uropoda scarcely reaching so far back as the 1st pair, basal part somewhat longer than the rami, the latter smooth. Telson rather large, projecting considerably beyond the basal part of the last pair of uropoda, gradually tapering from the base to the acuminated tip. Colour in the living state of the animal not yet stated. Length of adult female scarcely reaching 4 mm.

Remarks. — In spite of its close resemblance to the species of *Amphilochus,* this form undoubtedly belongs to the genus *Gitanopsis,* as characterised above. For the structure of the mandibles, as also that of the other oral parts, is the characteristic of the latter genus, and very different from that in *Amphilochus*. At first I was inclined to believe the *Amphilochus oculatus* of Hansen to be identical with the present species, as both seemed to agree pretty well, to judge from the figures given by that author, but having recently, through the kindness of the said author, had an opportunity of examining his type specimen, I have convinced myself that both are, in fact, distinct, and most probably, even belong to quite different genera The comparatively short antennæ and powerful gnathopoda will at once distinguish this form from the other species of the present genus.

Occurrence. — I have, as yet, only met with this form in a single locality off the Norwegian coast, viz., at Vadsø, Finmark. It occurred here rather sparingly in a depth of 20 to 50 fathoms. Out of Norway, it has not yet been recorded.

8. **Gitanopsis arctica,** G. O. Sars, n. sp.

(Pl. 77, fig. 2).

Body rather stout, with the back evenly rounded throughout. Cephalon fully as long as the first 2 segments of mesosome combined, rostrum evenly curved, and somewhat obtuse at the tip, which reaches about to the end of the basal joint of the superior antennæ, lateral corners not at all projecting, and evenly rounded. First pair of coxal plates distinctly visible outside, oblong linguiform and slightly indented at the tip; 2nd pair scarcely expanded in their outer part, distal edge narrowly rounded, and distinctly dentated; 4th pair not quite twice as deep as the corresponding segment, and transversely truncated at the tip. Last pair of epimeral plates of metasome somewhat produced at the lateral corners, but without any dentiform projection. Eyes rather large, and oval in form, visual elements well-developed. Superior antennæ of moderate length, joints of the peduncle successively diminishing in size, flagellum rather slender, half as long again as the peduncle, and composed of about 10 articulations. Inferior antennæ considerably longer than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum about as long as the peduncle, and composed of about 14 articulations. Gnathopoda comparatively feeble, and not very unequal, propodos in both pairs rather small, scarcely broader than the carpus, and gradually widening somewhat, distally, palm distinctly defined and nearly transverse, its edge finely denticulated, and having besides on each side a fascicle of stiff bristles, dactylus of moderate size, minutely spinulose inside, carpal process densely setous, and more projecting on the posterior pair, though not nearly extending to the palm. Pereiopoda of the usual structure, and edged with dense fascicles of short bristles. Last pair of uropoda reaching about as far back as the 1st pair, rami naked, and shorter than the basal part. Telson of moderate size, scarcely projecting beyond the latter, and conically tapering, tip slightly denticulated. Colour in the living state of the animal not yet stated. Length of adult female 5 mm.

Remarks. — The present new species is at once distinguished from the other forms belonging to this genus, by the form of the cephalon, the inferior edges of which are evenly curved, without forming any projecting, corners. Also the structure of the gnathopoda is rather characteristic.

Occurrence. — I found this form, many years ago, rather abundantly in the Varangerfjord at Vadsø, but regarded it at that time only as a large variety of *Gitana Sarsii,* to which form it, in fact, bears an unmistakable resemblance, as to the outer habitus.

Gen. 5. **Gitana,** Boeck, 1870.

Syn: Amphilochus, Stebbing (part).

Body smooth, and rather robust in form, with comparatively deep coxal plates, the 1st of which, however, are very small, and almost entirely concealed. Cephalon produced in front to a more or less projecting rostrum, broad at the base. Antennæ rather slender, the inferior ones, as a rule, somewhat longer than the superior. Mandibles well-developed, with the molar expansion large and protruding, palp slender, and nearly naked, terminal joint shorter than the penultimate one. First pair of maxillæ with the palp not very large, and uniarticulate; 2nd pair with the inner lobe shorter and broader than the outer. Maxillipeds nearly as in the preceding genus, except that the palp is comparatively more elongated and slender. Gnathopoda rather feeble in structure, not very unequal, and scarcely subcheliform, propodos narrow, without any distinctly defined palm, carpus more or less produced at the end inferiorly. Pereiopoda of the usual slender form. Uropoda and telson about as in the 3 preceding genera.

Remarks. — This genus, established by Boeck, is chiefly distinguished by the palp of the 1st pair of maxillæ being uniarticulate, and by the comparatively feeble and not subcheliform gnathopoda. Otherwise it shows a close affinity to the preceding genus (Gitanopsis). It comprises, as yet, 3 species, to be described in the sequel.

9. **Gitana Sarsii**, Boeck.

(Pl. 78, fig. 1).

Gitana Sarsii, Boeck, Crust. amphip. bor. & arct. p. 52.

Syn: Amphilochus sabrinæ, Stebbing.

Body short and stout, with boldly-curved back. Cephalon scarcely as long as the first 2 segments of mesosome combined, rostrum strongly curved, and reaching nearly to the end of the basal joint of the superior antennæ, tip somewhat blunted, lateral corners but little projecting, and nearly rectangular. Second pair of coxal plates much smaller than the 2 succeeding pairs, and somewhat tapering in their outer part, distal edge narrowly rounded, and exhibiting only 3 small serrations in the middle; 4th pair somewhat deeper than the corresponding segment, and finely serrated on the inferior and posterior edges. Last pair of epimeral plates of metasome somewhat produced at the lateral corners, without however forming any dentiform projection. Eyes of moderate size, rounded oval, with well-developed visual elements, and dark brown pigment. Superior antennæ about the length of the cephalon and the first 2 segments of mesosome combined, joints of the peduncle successively diminishing in size, flagellum scarcely longer than the peduncle, and composed of about 7 articulations. Inferior antennæ a little longer than the superior, last joint of the peduncle somewhat exceeding in length the penultimate one, flagellum rather slender, and nearly as long as the peduncle. Gnathopoda comparatively less feeble than in the other species of the genus, and nearly equal both as to size and structure, propodos in both pairs oblong oval, about the length of the 2 preceding joints combined, and provided on the inferior edge with fascicles of spiniform bristles, dactylus of moderate size, and hairy on the inner edge, carpus fully as broad as the propodos, and produced at the end inferiorly to a setiferous lobe, extending in the posterior pair about to the middle of the propodos. Pereiopoda somewhat less slender than in the 2 other species, basal joint of the 3 posterior pairs of moderate size, and oval in form. Last pair of uropoda rather large, reaching beyond the 1st pair, rami naked, and much shorter than the basal part. Telson of moderate size, not extending to the end of the latter, conically tapering, tip tridentate. Colour a more or less dark brown, or blackish violet, from numerous densely crowded pigmentary spots, forming mostly broad transverse bands extending down the coxal plates. Length of adult female scarcely exceeding 3 mm.

Remarks. — There cannot, I think, be any doubt that the *Amphilochus sabrinæ* of Stebbing is this species. As the name given by Boeck is much the older, it must be retained for the present species. It is regarded by that author as the type of the genus *Gitana*, and may easily be distinguished, when alive, from the other 2 species, by its very dark brownish colour.

Occurrence. — The species is a sublittoral form, occurring not rarely between algæ in shallow water. I have met with it along the whole coast of Norway, from the Christianiafjord to Vadsø.

Distribution. — British Isles (Stebbing), coast of France (Chevreux), Kattegat (Meinert), Spitsbergen (Norw. North Atl. Exped.).

10. **Gitana abyssicola,** G. O. Sars, n. sp.

(Pl. 78, fig. 2).

Body of a similar short and pulpy form to that in the preceding species. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, rostrum comparatively shorter than in *G. Sarsii*, and less strongly curved, lateral corners somewhat more produced. Second pair of coxal plates rather narrow, and exhibiting only 2 small serrations on the obtusely pointed tip; 4th pair rather large, considerably deeper than the corresponding segment, and having the edges quite smooth. Last pair of epimeral plates of metasome less produced at the lateral corners than in the type species. Eyes somewhat larger and more rounded, with the visual elements less refractive, and the pigment of a light red colour. Antennæ about as in the preceding species, except that the flagellum of the inferior ones is comparatively shorter, and only composed of 6 articulations. Gnathopoda somewhat more unequal, the posterior ones being considerably more slender than the anterior, propodos in the former about the length of the carpus, that of the latter much shorter, carpal process not nearly so produced as in *G. Sarsii,* and about of same appearance in both pairs. Pereiopoda comparatively more slender, basal joint of the 3 posterior pairs very large and broad. Uropoda and telson nearly as in *G. Sarsii.* Body whitish, pellucid, with large irregular patches of a light red colour, partly extending down the coxal plates and legs. Length of adult female nearly 5 mm.

Remarks. — Though very nearly allied to the preceding species, this form may on closer examination be readily distinguished, not only by its considerably larger size, but also by the form of the cephalon, the light red eyes, and the somewhat different structure of the gnathopoda. When alive it is, moreover, at once recognized by the rather characteristic colouring of the body.

Occurrence. — Unlike the preceding form, this species is a true deep-water form. I have, as yet, only met with it in a single locality, viz., at Selsovik, off the Nordland coast, lying exactly within the polar circle. It occurred here rather sparingly between the roots of *Paragorgia arborea*, in a depth of 100—150 fathoms.

11. **Gitana rostrata,** Boeck.

(Pl. 79, fig. 1).

Gitana rostrata, Boeck, Crust. amph. bor. & arct. p. 52.

Body somewhat less robust than in the 2 preceding species. Cephalon exceeding the length of the first 2 segments of mesosome combined, rostrum rather produced, acuminate, and but slightly curved, reaching beyond the basal joint of the superior antennæ, lateral corners very little projecting, and bluntly rounded. Second pair of coxal plates comparatively much larger than in the 2 preceding species, and somewhat tapering in their outer part, distal edge narrowly rounded, and finely denticulated; 4th pair very large, fully twice as deep as the corresponding segment. Last pair of epimeral plates of metasome slightly produced at the lateral corners, without however forming any dentiform projection. Eyes rather small, rounded, with the visual elements few in number, and imperfectly developed, pigment light red, with a whitish coating. Antennæ very slender, the superior ones somewhat longer than the cephalon and the first 2 segments of mesosome combined, 2nd joint of the peduncle much elongated, and considerably exceeding in length the 1st, flagellum shorter than the peduncle, and composed of about 7 articulations. Inferior antennæ nearly half as long again as the superior, the 2 outer joints of the peduncle rather elongated and narrow, subequal, flagellum about half the length of the peduncle. Gnathopoda very slender and feeble, the posterior ones somewhat more elongated than the anterior, propodos in both pairs quite simple, linear in form, and considerably shorter than the carpus, the latter provided along the lower edge with numerous fascicles of small bristles, and scarcely at all produced at the end inferiorly. Pereiopoda very slender and elongated, basal joint of the 3 posterior pairs large and laminar. Last pair of uropoda rather elongated, though scarcely reaching beyond the 1st pair, rami naked, and considerably shorter than the basal part. Telson of moderate size, not extending to the end of the latter, conically tapering to a simple acuminate point. Colour uniformly whitish, without any trace of pigmentary spots, sometimes with a faint reddish tinge. Length of adult female reaching 7 mm.

Remarks. — The present species, established by Boeck, is readily distinguishable from either of the 2 preceding ones, by the strongly projecting and acuminate rostrum, as also by the very slender from of the antennæ, gnathopoda and pereiopoda. In the living state it is, moreover, at once recognized by the uniform whitish colour of the body.

Occurrence. — I have met with this form rather abundantly in several places off the west coast of Norway, thus at Hvitingsø, in the Hardangerfjord, and at Christiansund, as also in the Trondhjemsfjord, and at Apelvær, Namdal. It extends northwards to Hasvig, west Finmark. Like *G. abyssicola,* it is a true deep-water form, occurring only in greater depths, from 100 to 200 fathoms, especially in the region of the deep, sea corals. Out of Norway it has not yet been recorded.

Gen. 6. **Stegoplax,** G. O. Sars, 1882.

Body short and stout, with rather firm integuments. Cephalon produced in front to a large acuminate rostrum. The 2 first pairs of coxal plates quite rudimentary, 3rd and 4th pairs largely developed, the latter pair deeply emarginated in their upper part. Metasome not very powerful. Antennæ comparatively small, the superior ones simple, without any secondary appendage. Epistome produced in front to a rounded lamellar projection. Anterior lip about as in *Gitana;* posterior lip with the lateral lobes simple, without any incision inside. Mandibles strong, with the molar expansion large and protruding, palp comparatively small. First pair of maxillæ with the palp uniarticulate; 2nd pair with the lobes rather narrow, and but sparingly setous. Maxillipeds well-developed, basal lobes rather large, masticatory lobes much smaller, and scarcely projecting beyond the 1st joint of the palp, the latter robust, and but sparingly setous. Gnathopoda subequal, not very strong, and imperfectly subcheliform. Pereiopoda slender, basal joint of the antepenultimate pair linear, that of the 2 last pairs laminarly dilated. Uropoda and telson nearly of same structure as in the 4 preceding genera.

Remarks. — The present genus is apparently nearly allied to the genus *Cyproidia* of Hasswell, as recently redescribed by the Rev. Mr. Stebbing, though materially differing by the large rostral projection, the want of any accessory appendage to the superior antennæ, and the different structure of the gnathopoda. Moreover the structure of the uropoda and telson is very deviating in the two genera. I have had an opportunity of examining a Mediterranean species, evidently congeneric with the British form described by Mr. Stebbing, and cannot, by any means, bring this form within the same genus as the species described below.

12. **Stegoplax longirostris**, G. O. Sars.

(Pl. 79, fig. 2).

Stegoplax longirostris, G. O. Sars, Oversigt over Norges Crustaceer I p. 88, Pl 3, fig. 11.

Body of very short and compact form, and quite smooth, with the back evenly vaulted. Cephalon about the length of the first 3 segments of mesosome combined, rostrum very long and acuminate, but very slightly curved, and reaching nearly to the end of the superior antennæ. First and 2nd pairs of coxal plates extremely small, subequal in appearance and almost completely covered by the 3rd pair, the latter very large, and strongly expanded distally, inferior and anterior edges forming together a perfectly even curve; 4th pair still larger, twice as deep as the corresponding segment, inferior and posterior edges evenly curved, posterior excavation defined below by a nearly right angle; 5th pair rather small, and somewhat oblique, nearly twice as broad as they are deep, posterior lobe the deeper. Last pair of epimeral plates of metasome somewhat produced at the lateral corners, but without any dentiform projection. Last segment of urosome excavated dorsally, the excavation being defined by 2 longitudinal parallel ridges, each terminating in a projecting, tooth-like process. Eyes extremely small, rounded, each with only 3 imperfectly-developed visual elements, pigment red, with a whitish coating. Superior antennæ rather small, 1st joint of the peduncle about the length of the other 2 combined, flagellum shorter than the peduncle, and composed of 5 articulations, the 1st of which nearly equals in length the remaining part of the flagellum, all being provided with long band-like sensory appendages. Inferior antennæ somewhat longer than the superior, and much more slender, last joint of the peduncle fully twice the length of the penultimate one, flagellum nearly as long as the peduncle, and composed of 4 articulations, the 1st of which equals in length the other 3 combined. Gnathopoda almost exactly alike, both as to size and structure, the posterior ones being only a little more slender, propodos in both pairs very narrow, and scarcely longer than the 2 preceding joints combined, palm not distinctly defined, its edge minutely ciliated, and having besides on the anterior pair 2, on the posterior a single small denticle, dactylus slender and finely spinulose on the inner edge, carpus produced at the end inferiorly to a rather short setiferous lobe. Anterior pairs of perieopoda considerably more elongated than the posterior, and very slender. Basal joint of the penultimate pair oval in form, posterior edge deeply sinuated below the middle, that of the last pair somewhat larger, and forming inferiorly a broad deflexed lobe emarginated at the tip. Last pair of uropoda much larger than the penultimate pair, and reaching nearly as far back as the 1st pair, basal part large and somewhat laminar, rami narrow lanceolate and quite naked. Telson conically triangular and flattened, reaching about to the end of the basal part of the last pair of uropoda, but generally quite concealed in the lateral aspect of the animal. Colour uniformly greyish white, without any pigmentation. Length of adult female scarcely exeeding 2 mm.

Remarks. — This is the only as yet known species of the genus, and may easily be distinguished from any of the other northern Amphilochidæ by the strongly projecting rostrum and the enormous development of the 3rd and 4th pairs of coxal plates.

Occurrence. — Owing to its small size and inconspicuous colouring, this peculiar form may easily escape attention. I have only seen a few specimens, which were derived from 3 different localities off the Norwegian coast, viz., in the Hardangerfjord at Sunde, in the Trondhjemsfjord, and off the Lofoten Isles. It occurred in all the localities at a very considerable depth, from 150 to 300 fathoms. Out of Norway, it has not yet been recorded.

Fam. 8. Stenothoidæ.

Body more or less compressed, with rather large coxal plates, the 1st pair of which, however, are quite rudimentary. Cephalon comparatively small, and without any distinct rostrum. Metasome, as a rule, not very powerful. Antennæ more or less slender, with elongated peduncles, the superior ones without any accessory appendage. Buccal mass very little projecting. Anterior lip laminar, and distinctly bilobed; posterior lip very small. Mandibles, as a rule, short and stout, cutting edge coarsely dentated, molar expansion very slight, or quite obsolete, palp present or wanting. First pair of maxillæ rather stout, palp uni- or biarticulate, basal lobe minute. Second pair of maxillæ much smaller than the 1st, inner lobe more or less rudimentary. Maxillipeds with the basal lobes comparatively small and sometimes coalesced, masticatory lobes obsolete, palp very large and pediform, with the terminal joint claw-shaped. Gnathopoda, as a rule, very unequal, the posterior ones being much the larger, distinctly subcheliform, and often peculiarly modified in the male. Pereiopoda more or less slender, basal joint of the antepenultimate pair generally (but not always) linear, that of the last 2 pairs, as a rule, laminarly expanded. Branchial lamellæ simple and rather small; incubatory lamellæ large and broad, edged with slender setæ. The 2 anterior pairs of uropoda normal, biramous; last pair simple, styliform, 3-articulate. Telson, when present, squamiform, entire.

Remarks. — The present family is a very natural one, differing, as it does, in several points very materially from those treated of in the preceding pages. Thus the structure of the oral parts is rather peculiar, as also that of the last pair of uropoda. The sexual difference is often very pronounced, especially as regards the structure of the posterior gnathopoda, and this affords another characteristic feature that somewhat reminds of the family *Orchestiidæ*. On account of the largely-developed coxal plates Sp. Bate associated these forms with the family *Stegocephalidæ*, whereas Dana, at an earlier date, had placed them within his family *Leucothoidæ*. Boeck, however, justly separated the family *Stenothoidæ* from both these families, with which it, in fact, only shows a remote affinity. The family comprises, as yet, 4 genera, to be treated of in the following pages.

Gen. 1. **Stenothoe**, Dana, 1852.

Syn: Montagua, Sp. Bate (part).

Body smooth and shining, now rather short and robust, now more slender of form. Cephalon narrowly truncated in front, lateral corners but little projecting. Coxal plates, as a rule, of moderate size, 1st pair almost entirely concealed, 2nd pair rounded in front, and covering at the sides the oral area, 3rd pair more or less expanded distally, and transversely truncated at the end, 4th pair nearly triangular in form, obtusely produced posteriorly, and covering to a great extent the succeeding pairs, which are rather small, with the posterior lobe much deeper than the anterior. Antennæ more or less elongated, and, as a rule, subequal in length. Mandibles without any trace of a palp, molar expansion obsolete. First pair of maxillæ with the palp rather large, and distinctly biarticulate, last joint with a row of small spines on the inner edge. Maxillipeds with the basal lobes very small and narrow, distinctly separated to their base, and bearing 2 small apical bristles, palp very elongated, with the claw-like terminal joint finely ciliated inside. Anterior gnathopoda, as a rule, much smaller than the posterior, and more or less distinctly subcheliform, meral joint produced at the end inferiorly to a setous projection. Posterior gnathopoda large and powerful, meral joint triangularly produced inferiorly. The 2 anterior pairs of pereiopoda subequal, the 3 posterior ones of moderate length; basal joint of antepenultimate pair linear, that of the 2 last pairs laminarly expanded. Last pair of uropoda more or less elongated, and spinous on the upper face. Telson well-defined.

Remarks. — The present genus, established by Dana, may be regarded as the type of the family. It is chiefly distinguished from the 2 succeeding genera by the mandibles being without any trace of a palp, and by the very small basal plates of the maxillipeds. Besides the type species, *S. valida* of Dana, and another form described by the Rev. Mr. Stebbing from the Challenger Expedition as *S. adhærens,* 6 northern species may be referred to the present genus.

1. **Stenothoe marina,** (Sp. Bate).

(Pl. 80).

Montagua marina, Sp. Bate, Catal. Brit. Mus., p. 56, Pl. VIII, fig, 5.

Body moderately slender and rather compressed, with the back evenly rounded. Cephalon but very slightly produced in front, lateral corners rounded off. Second pair of coxal plates much smaller than the succeeding pair, and somewhat sinuated posteriorly, inferior and anterior edges forming together an even and rather strong curve, infero-posteal corner armed with a small dentiform projection; 3rd pair somewhat expanded distally, and transversely truncated at the tip; 4th pair nearly as large as the 2 preceding pairs combined, and somewhat broader than they are deep, distal edge strongly curved in the middle. Last pair of epimeral plates of metasome but slightly produced at the lateral corners. Eyes of moderate size, rounded, with well-developed visual elements and dark red pigment. Superior antennæ in female nearly half as long as the body and very slender, 1st joint of the peduncle about the length of the cephalon, 2nd joint a little shorter and much narrower, flagellum half as long again as the peduncle. Inferior antennæ somewhat shorter than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum considerably longer than the last joint of the peduncle. Antennæ in male comparatively stronger and more elongated than in female. Anterior gnathopoda rather feeble, meral process reaching nearly to the end of the carpus, propodos fully as long as the 2 preceding joints, and somewhat expanded distally, palm obliquely curved, and armed posteriorly with 3 small spinules. Posterior gnathopoda in female rather powerful, propodos fully as long as the basal joint, and nearly obpyriform, tapering distally, palm very oblique, occupying the greater part of the length of the propodos, and defined posteriorly by a slight angle bearing a slender spine, its edge somewhat irregularly dentated throughout, and bearing besides small hairs, hind margin rounded off, and provided with 3—4 fascicles of slender bristles, dactylus very strong and curved at the base. Same legs in male much more powerful than in female, propodos very large, and less dilated in its posterior part, palm less distinctly defined, and having some of the outer denticles very large and tuberculiform, dactylus finely hairy inside. Pereiopoda moderately slender, and edged with fascicles of short spines, meral joint of the 3 posterior pairs somewhat produced at the posterior corner, basal joint of last pair broadly oval in form, and about half as long as the remaining part of the leg. Last pair of uropoda with the basal joint about the length of the other 2 combined, and armed on the upper face with a row of 6 denticles. Telson oblong oval, obtusely pointed at the tip, and armed with 2 pairs of dorsal denticles. Body pellucid whitish, mottled with yellow, and having besides a number of scattered pinkish patches, the largest of which occupies on each side about the centre of the anterior division of the body. Length of adult female reaching 5 mm, of male nearly 6 mm.

Remarks. — The present species, first described by Sp. Bate as *Montagua marina,* is chiefly distinguished from its nearest allies by the structure of the posterior gnathopoda, as also by a few other minor differences mentioned in the above diagnosis. It would seem to be closely allied to *S. valida* of Dana.

Occurrence. — Off the south and west coast of Norway this species is by no means rare, occurring, as a rule, in moderate depths, from 20 to 50 fathoms, especially among Hydroidæ, to which it is often found clinging. It extends northwards to the Nordland coast (Tjötö), and is also found in the Trondhjemsfjord.

Distribution. — British Isles (Sp. Bate), Shetland (Norman), coast of France (Chevreux), Adriatic (Heller).

2. **Stenothoe microps,** G. O. Sars, n. sp.

(Pl 81, fig. 1).

Very like the preceding species, but nearly twice as large, and somewhat more robust of form. Cephalon about twice the length of the 1st segment of mesosome, lateral corners evenly rounded. Second pair of coxal plates comparatively broader than in the preceding species, and less sinuated posteriorly; 3rd pair rather expanded; 4th pair about as deep as they are broad, distal edge evenly curved. Last pair of epimeral plates of metasome a little more produced at the lateral corners than in *S. marina.* Eyes very small, rounded, with imperfectly-developed visual elements, and light red pigment. Antennæ nearly equal in length, and comparatively shorter than in *S. marina,* the superior ones with the 1st joint of the peduncle much longer than the cephalon, and equalling in length the 2nd, flagellum but little longer than the peduncle, that of the inferior ones rather short, scarcely exceeding the length of the last peduncular joint. Anterior gnathopoda of same structure as in the said species, except that the propodos appears a little smaller. Posterior gnathopoda in female comparatively larger than in the type species, propodos more elongated, and somewhat resembling that of the adult male of *S. marina,* palm coarsely dentated and extending nearly to the base, being defined posteriorly by a very slight prominence armed with 2 strong spinules. Pereiopoda very like those in the preceding species, though the basal joint of the 2 last pairs appears comparatively somewhat larger. Last pair of uropoda with the basal joint somewhat longer than the other 2 combined, and armed with 8 denticles. Telson comparatively broader than in the type species, and armed with 4 pairs of dorsal denticles. Body highly pellucid, of whitish colour, with a few scattered reddish patches; ova in the marsupial pouch very numerous and small, and of a light bluish grey hue. Length of adult female $8^1/_2$ mm.

Remarks. — The above described form is so very nearly related to *S. marina*, that I have long regarded it only as a large variety of that species. On a closer anatomical examination, I have, however, found some apparently constant differences between the two forms, and prefer therefore, at present, to keep them specifically distinct. Thus, the very small eyes with their imperfectly-developed visual elements, the comparatively shorter and less unequal antennæ, and the somewhat different form of the posterior gnathopoda, will serve for distinguishing the present species from *S. marina.*

Occurrence. — As the species was formerly confounded with *S. marina,* I am at present unable to state with certainity the places where it occurred, but believe them to have belonged either to the south or the west coast of Norway, or most probably to both these tracts. As far as I remember, the specimens were procured from a rather considerable depth, ranging to nearly 100 fathoms.

Distribution. — North Sea, outside the great fishing banks (Stockholm Museum).

3. **Stenothoe tenella,** G. O. Sars.

(Pl. 81, fig. 2).

Stenothoe tenella, G. O. Sars, Overs. af Norges Crustaceer I, p. 88, Pl. 3. fig. 12.

Form of body considerably more slender than in the 2 preceding species. Cephalon somewhat produced in front between the bases of the superior antennæ, lateral corners distinctly angular at the tip. Second pair of coxal plates rather broad, anterior edge boldly curved, posterior straight, tip narrowly truncated; 3rd pair rather expanded distally; 4th pair scarcely as large as the 2 preceding pairs combined, distal edge obliquely curved, and nearly angular below the middle. Last pair of epimeral plates of metasome much produced at the lateral corners. Eyes rather large, rounded, visual elements imperfectly developed, pigment light red Antennæ very elongated and slender, the superior ones considerably exceeding half the length of the body, 1st joint of the peduncle about as long as the cephalon, 2nd considerably longer and narrower, flagellum about twice the length of the peduncle. Inferior antennæ fully as long as the superior, with the 2 outer joints of the peduncle very elongated and slender, subequal. Gnathopoda somewhat resembling those in *S. marina;* the anterior ones being much smaller than the posterior, with the propodos rather narrow, and scarcely broader than the carpus. Posterior gnathopoda in female comparatively less powerful than in the said species, propodos oblong obpyriform, gradually tapering from the base to the tip, palm very oblique, and not defined posteriorly by any distinct angle, its edge irregularly serrated, some of the anterior serrations being more projecting, and besides armed in its hind part with 3 small spinules. Same legs in male much larger, propodos narrow oblong, and somewhat curved, palm slightly concave in the middle, and densely hairy, without exhibiting any trace of spinules or denticles, except in its most anterior part, which forms a laminar expansion irregularly dentated at the edge, the lower denticle being rather large, and defined above by a deep sinus; dactylus very strong, and finely hairy on the inner edge. Pereiopoda much more slender and elongated than in the 2 preceding species, the meral joint being in all pairs very narrow and scarcely at all produced at the end, basal joint of last pair rather broad, rounded oval, with the posterior edge boldly curved in the middle. Last pair of uropoda with the basal joint much longer than the other 2 combined, and armed with 8 denticles. Telson oblong oval, nearly twice as long as it is broad, and armed with 3 pairs of dorsal denticles, outer part tapering to an obtuse point. Body of whitish colour, banded with irregular, light-red patches; ova in the marsupial pouch, as also the ovarian sacs, of a beautiful violaceous hue. Length of adult female $5^1/_2$ mm.

Remarks. — Though nearly allied to *S. marina,* this species is at once distinguished by the much more slender form of its body, the large light red eyes, the elongated and slender antennæ, and the likewise very slender pereiopoda.

Occurrence. — The species is a true deep-water form, only occurring in greater depths, ranging from 80 to 150 fathoms. I have met with it in two localities off the west coast of Norway, Korshavn and Bekkervig, and recently also in the Trondhjemsfjord. Out of Norway, it has not yet been recorded.

4. **Stenothoe monoculoides** (Mont.).

(Pl. 82, fig. 1).

Cancer gammararus monoculoides, Montagu, Transact. Lin. Soc. XI.

Syn: Montagua monoculoides, Sp. Bate.

Body very short and compact, with broadly-rounded back. Cephalon scarcely at all produced in front, lateral corners somewhat projecting and obtusely angular at the tip. Coxal plates very large, 2nd pair scarcely smaller than the 3rd, and somewhat expanded distally, inferior and anterior edges forming together a rather bold curve; 3rd pair but very little expanded in their outer part; 4th pair larger than the 2 preceding pairs combined, and obtusely rounded posteriorly, distal edge but very slightly curved. Last pair of epimeral plates of metasome somewhat produced at the lateral corners. Eyes small, rounded, with well-developed visual elements, and dark red pigment. Antennæ comparatively short and stout, the superior ones scarcely exceeding $^1/_3$ of the total length, 1st joint of the peduncle rather thick, and much shorter than the cephalon, the other 2 successively smaller, flagellum half as long again as the peduncle, and composed of about 12 articulations, very sharply defined from each other. Inferior antennæ nearly of same length as the superior, last joint of the peduncle longer than the penultimate one, flagellum exceeding in length the peduncle, and composed of about 10 articulations. Palp of the maxillipeds comparatively shorter and stouter than in the other species, with the 1st joint very large and laminar. Gnathopoda rather strong, and scarcely differing in the 2 sexes, both pairs distinctly subcheliform, and nearly of same structure, though somewhat unequal in size; carpus in both pairs very short, and produced inferiorly to a small setiferous lobe, propodos rather large, oblong quadrangular in form, palm well defined, nearly transverse on the anterior pair, somewhat more oblique on the posterior pair, its edge smooth, having on the posterior pair 2 small spinules in its hind part. Pereiopoda extremely slender, meral joint comparatively short, and but little produced at the end, propodal joint, on the other hand, rather elongated, dactylus very strong and curved; basal joint of the 2 posterior pairs not attaining half the length of the remaining part of the leg, its posterior edge slightly crenulated. Last pair of uropoda with the basal joint very short and broad, scarcely longer than the 2nd, and armed with 3 strong denticles, terminal joint about the same length, and spiniform. Telson rather large, oblong oval in form, and without any trace of denticles, outer part evenly rounded off. Body whitish, banded with irregular, reddish-orange patches, more largely developed on the 3rd and 4th segment of mesosome and corresponding coxal plates; ova in the marsupial pouch dark bluish. Length of adult female scarcely exceeding 3 mm,

Remarks. — This form, described as early as 1807 by Colonel Montagu as *Cancer gammarus monoculoides,* is a very distinct and easily recognizable species, differing, as it does, in several points very markedly, not only from the type species, *S. marina,* but also from the other species belonging to this genus. Even in the structure of the oral parts some well-marked differences are to be found, and perhaps, therefore, this form should more properly be separated as the type of a distinct genus.

Occurrence. — In habits, it is a true littoral form, ocurring, as a rule, only close to the shores among algæ. Still more frequently, it is found at low water mark in shallow pools left by the tide, especially in such, whose bottom is overgrown with algæ and Hydroida. I have met with it in several places, both off the south and west coast of Norway, and northwards to Bejan, at the entrance of the Trondhjemsfjord.

Distribution. — British Isles (Montagu, Sp. Bate), Kattegat (Meinert), coast of France (Chevreux).

5. **Stenothoe brevicornis,** G. O. Sars.

(Pl. 82, fig. 2)

Stenothoe brevicornis, G. O. Sars, Oversigt af Norges Crustaceer I, p. 89, Pl. 4, fig. 1.

Body comparatively robust, and but little compressed, though somewhat less compact than in *S. monoculoides.* Cephalon rather small, and scarcely produced in front, lateral corners but little produced, and obtusely angular at the tip. Coxal plates of moderate size, 2nd pair scarcely expanded distally, and rounded at the end; 3rd pair considerably larger, and distinctly expanded in their outer part; 4th pair about as large as the 2 preceding pairs combined, and obtusely angulated posteriorly, distal edge obliquely curved. Last pair of epimeral plates of metasome but little produced, and nearly rectangular. Eyes of moderate size, rounded, with well-developed visual elements and dark red pigment. Antennæ comparatively short; the superior ones scarcely exceeding $^1/_3$ of the total length, 1st joint of the peduncle about the length of the cephalon, 2nd joint somewhat shorter, 3rd very small, flagellum scarcely longer than the peduncle, rather slender, and composed of about 12 articulations. Inferior antennæ about the length of the superior, the 2 outer joints of the peduncle equal-sized, flagellum scarcely exceeding half the length of the peduncle. Gnathopoda rather unequal both in size and structure; the anterior ones much smaller than the posterior, and of the usual form, the meral joint being produced at the end inferiorly to a setiferous process, propodos about the length of the carpus, though much broader, and nearly triangular in form, palm distinctly defined, straight, and about the length of the hind margin. Posterior gnathopoda in female moderately strong, propodos triangularly expanded, and occupying about the third part of the length of the leg, palm about the length of the hind margin, and defined posteriorly by a somewhat projecting angle armed with a few spinules, its edge slightly flexuous, and distinctly denticulated in its anterior part, dactylus not very strong. Pereiopoda comparatively short and stout, nearly naked, meral joint rather expanded, and distinctly produced at the end, basal joint of the 2 posterior pairs of moderate size, oval in form, posterior edge smooth. Last pair of uropoda with the basal joint rather large, exceeding the length of the other 2 combined, and armed with 5 very minute denticles, terminal joint comparatively small. Telson of moderate size, oblong oval in form, and quite unarmed, outer part tapering to an obtuse point. Colour uniformly whitish, without any trace of pigmentation; ova in the marsupial pouch bluish green. Length of adult female 8 mm.

Remarks. — The nearest ally of this very distinct species would seem to be *S. monoculoides,* from which however it is easily distinguishable, not only by its much larger size, but also by the rather different structure of the several appendages of the body, and likewise by the uniformly whitish colour.

Occurrence. — I first found this form in a single place off the west coast of Norway, Korshavn, where a few specimens were procured from a depth of about 50 fathoms. Subsequently, I have met with it more abundantly off the Nordland coast, at Tjøtø, and a single specimen of the same form has also been collected at Tromsø by Mr. Schneider. Out of Norway, it has not yet been recorded.

6. **Stenothoe megacheir** (Boeck).

(Pl. 83).

Metopa megacheir, Boeck, Crust. amph. bor. & arct p. 63.

Body comparatively slender, and rather compressed, with the coxal plates not very large. Cephalon fully twice as long as the 1st segment of mesosome, and somewhat produced in front, lateral corners very little projecting, and bluntly angulated. Second pair of coxal plates scarcely expanded in their outer part, distal edge slightly sinuated, and defined posteriorly by a projecting angle; 3rd pair somewhat larger, and gradually widening below; 4th pair scarcely as large as the 2 preceding pairs combined, bluntly produced posteriorly, distal edge somewhat obliquely curved. Last pair of epimeral plates of metasome moderately produced at the lateral corners. Eyes rather large, rounded, without any distinctly developed visual elements, pigment light yellowish red. Antennæ extremely slender and elongated; the superior ones fully as long as the whole body, 2nd joint of the peduncle considerably longer than the 1st, which somewhat exceeds the length of the cephalon, flagellum about twice as long as the peduncle, and very slender, filiform. Inferior antennæ in female a little shorter than the superior, in male somewhat longer, the 2 outer joints of the peduncle very much elongated, and nearly equal-sized, flagellum much shorter than the last peduncular joint. Maxillipeds very slender and elongated. Anterior gnathopoda comparatively small and feeble, meral joint produced in the usual manner, propodos about the length of the carpus, and but little broader, its palm somewhat oblique, though not attaining the length of the hind margin, Posterior gnathopoda very large and powerful, especially in the male, propodos largely developed, fully as long as the basal joint, and oblong oval in form, slightly tapering distally, palm very oblique, forming anteriorly a lamellar, dentated expansion, and being defined posteriorly by a distinctly projecting angle armed with 2 strong spinules, its edge in female very slightly concave and irregularly serrated, in male divided into 3 very strong and curved dentiform projections, dactylus strong and curved, its inner edge in male finely ciliated. Pereiopoda rather slender and densely edged with fascicles of short spinules, meral joint in all very narrow and elongated, fully as long as the 2 outer joints combined, and but very slightly produced at the end; basal joint of the 3 last pairs of moderate size, and oval in form. Uropoda rather slender, last pair with the basal joint nearly twice as long as the outer 2 combined, and armed with about 10 denticles. Telson of moderate size, oblong oval in form, and armed with 3 pairs of dorsal denticles, outer part somewhat narrowed. Body whitish, pellucid, with scattered orange-coloured patches, legs and urosome somewhat more intensely coloured; ova in the marsupial pouch of a light violaceous hue. Length of adult female 8 mm, of male about the same.

Remarks. — Boeck erroneously described this form as a *Metopa*. It belongs, however, quite certainly to the genus *Stenothoe,* as characterized by that author. From the other species, it is at once distinguished by its slender form of body, the very much elongated antennæ, and the structure of the posterior gnathopoda in the 2 sexes. As in the other species of the present genus, the mandibles are wholly wanting in any trace of a palp.

Occurrence. — As to habits, this species is a true deep-water form, only occurring in greater depths, from 80 to 150 fathoms, especially in the region of the deep sea corals. I have met with it rather sparingly in a few places off the west coast of Norway, Hardangerfjord, Bekkervig, and quite recently also in the Trondhjemsfjord, where it occurred in one place (Rødbjerget) rather abundantly, among *Lophelia prolifera.* Out of Norway it has not yet been recorded.

Gen. 2. **Probolium,** Costa, 1853.

Body of female comparatively strongly built, with large and deep coxal plates; that of male somewhat more slender. Antennæ of moderate size, subequal in length. Anterior lip as in *Stenothoe*; posterior lip with the inner lobes coalesced. Mandibles having a distinct, though rather small, 3-articulated palp, the terminal joint of which is extremely, minute and provided with only a single apical seta. First pair of maxillæ with the palp well developed and distinctly biarticulate. Maxillipeds with the basal lobes comparatively larger than in *Stenothoe*, broadly rounded at the tip, and separated until the base. Gnathopoda rather unequal, the anterior ones being very small and imperfectly subcheliform, the posterior ones powerfully developed, with the meral joint, as in *Stenothoe*, triangularly produced below, propodos very differently shaped in the 2 sexes, in female distinctly subcheliform, in male much produced, and without any distinctly defined palm, dactylus very long and curved. The 2 anterior pairs of pereiopoda somewhat unequal, the 2nd pair being much stronger than the 1st; the 3 posterior pairs comparatively short and stout, with the meral joint rather expanded, and produced at the infero-posteal corners to a triangular lobe, basal joint of the 2 last pairs laminarly dilated. Uropoda and telson about as in Stenothoe.

Remarks. — This genus, established by Costa, is somewhat intermediate in character between the genera *Stenothoe* and *Metopa.* With the former it agrees in the structure of the 1st pair of maxillæ, the palp of which is distinctly biarticulate, in the basal lobes of the maxillipeds being separated until the base, and in the triangularly produced form of the meral joint of the posterior gnathopoda. On the other hand it approaches the genus *Metopa* in the structure of the mandibles, which are provided with distinct palps, moreover, in the form of the posterior lip, and the somewhat unequal development of the 2 anterior pairs of pereiopoda. From both these genera it differs by the deviating form of the basal lobes of the maxillipeds, and especially by the very strongly-pronounced sexual difference as regards the structure of the posterior gnathopoda. The genus *Probolium* of Costa was identified by Boeck and most subsequent authors, with the genus *Stenothoe*. This, I believe, is not correct. For to judge from the figure given by Costa of the species upon which his genus was founded, *P. polyprion*, this form is scarcely a *Stenothoe* in the sense of Boeck, but most probably congeneric with the 2 Norwegian species to be next described.

7. **Probolium gregarium**, G. O. Sars.

(Pl. 84).

Metopa gregaria, G. O. Sars, Overs. af Norges Crustaceer I, p. 93, Pl. 4, fig. 6.

Body rather stout, and somewhat compressed, with evenly rounded back. Cephalon about twice as long as the 1st segment of mesosome, lateral corners nearly rectangular, front scarcely produced. Second pair of coxal plates nearly of equal breadth throughout, and broadly rounded at the tip, posterior edge slightly sinuated, 3rd pair rather expanded distally, especially in the male, and fully twice as deep as the corresponding segment; 4th pair about as large as the 2 preceding pairs combined, obtusely produced posteriorly, and having the distal edge evenly curved. Last pair of epimeral plates of metasome somewhat produced at the lateral corners. Eyes of moderate size, rounded oval, with well-developed visual elements and dark red pigment. Superior antennæ scarcely exceeding half the length of the body, and rather slender, 1st joint of the peduncle about as long as the cephalon, 2nd joint of same length, but much narrower, flagellum half as long again as the peduncle. Inferior antennæ with the last joint of the peduncle a little shorter than the penultimate one, flagellum not attaining half the length of the peduncle. Anterior gnathopoda with the meral joint produced at the end inferiorly to a rather projecting setiferous process, propodos about the length of the carpus, and scarcely broader, its inferior edge slightly curved in the middle, and armed, in addition to the bristles, with 4 small spinules. Posterior gnathopoda in female more than twice as large as the anterior, propodos fully as long as the basal joint, and oblong oval in form, palm rather oblique, and somewhat longer than the hind margin, from which it is defined by a distinct angle, armed with a small spinule, its edge irregularly sinuated, and forming anteriorly a slight expansion divided into 6 coarse serrations, behind which there is a small, finely-denticulated elevation, dactylus rather strong and curved. Same legs in male much larger than in female, and very unlike in shape, the propodos being considerably produced, and much narrower in proportion to its length, with the inferior edge nearly straight, and densely hairy, exhibiting besides 2 coarse dentiform processes, and terminating in front with a lamellar expansion, finely serrated on the edge; dactylus very much elongated, and ciliated on the inner edge. Second pair of pereiopoda much stronger than the 1st; the 3 posterior pairs successively diminishing somewhat in length, meral joint very large, and produced, on the last 2 pairs, nearly to the end of the carpal joint; basal joint of penultimate pair oval quadrangular, of last pair obliquely rounded. Last pair of uropoda rather short and stout, basal joint somewhat longer than the other 2 combined, and armed with 6 short, but rather strong denticles. Telson oblong, fully twice as long as it is broad, and armed with 4 pairs of dorsal denticles, outer part tapering to an acute point. Body whitish, pellucid, with scattered orange-coloured patches; ova in the marsupial pouch greenish. Length of adult female 5 mm, of male 6 mm.

Remarks. — I first described this form as a *Metopa*, on account of its being provided with distinct mandibular palps. On a closer anatomical examination, I have, however, found it to differ from that genus in a few essential characteristics, apparently of generic value, some of which point to its close relationship to the Mediterranean form, upon which Costa founded his genus *Probolium*. The present species cannot properly be confounded with any other of the northern Stenothoidæ.

Occurrence. — The species was detected by me, several years ago, off the west coast of Norway, at Bekkervig, where a considerable number of specimens, males and females, were picked up from a finely-ramified alga, brought up by the dredge, from a depth of 50 to 80 fathoms. Subsequently I have also found it not infrequently in the Trondhjemsfjord in several places, and at depths varying from 40 to 100 fathoms. Out of Norway, it has not yet been recorded.

8. **Probolium calcaratum**, G. O. Sars.

(Pl. 85).

Metopa calcarata, G. O. Sars, Overs. Norges Crust. I, p. 92, Pl. 4, fig. 5.

Body comparatively somewhat more compact of form than in the preceding species, at least as regards the female. Cephalon scarcely twice as long as the 1st segment of mesosome, lateral corners in female distinctly angular, in male more rounded. Second pair of coxal plates obliquely curved in front, outer part somewhat narrowed, especially in the male; 3rd pair gradually widening below, and nearly twice as deep as the corresponding segment; 4th pair scarcely as large as the 2 preceding pairs combined, and bluntly produced posteriorly, distal edge strongly curved in its hind part. Last pair of epimeral plates of metasome somewhat more produced at the lateral corners than in *P. gregarium.* Eyes very large, oval quadrangular in form, and nearly occupying the entire height of the cephalon, visual elements less perfectly developed, pigment light red. Superior antennæ scarcely attaining half the length of the body, 1st joint of the peduncle rather thick at the base, and exceeding in length the 2nd, flagellum but little longer than the peduncle. Inferior antennæ nearly as long as the superior, last joint of the peduncle somewhat shorter than the penultimate one. Anterior gnathopoda almost exactly as in *P. gregarium.* Posterior gnathopoda in female somewhat less strong, propodos not nearly attaining the length of the basal joint, and triangular oval in form, palm somewhat oblique, about as long as the hind margin, and defined from the latter by an obtuse angle, its edge nearly straight, very slightly serrated, and armed in its posterior part with 3 small spinules, dactylus of moderate size. Same legs in male very much produced, meral and carpal joints comparatively small, rounded, and scarcely at all produced inferiorly, propodos very long and curved, its inferior edge slightly concave and densely hairy, without any dentiform projections, but forming in front a slight lamellar expansion, finely serrated at the edge, dactylus very much elongated, and ciliated along the inner edge. Anterior pairs of pereiopoda about as in *P. gregarium;* the 3 posterior pairs comparatively still shorter and more robust, meral joint very large, and much produced at the inferior corner, which, on the last 2 pairs, extends even considerably beyond the carpal joint, basal joint of the latter pairs nearly as in the preceding species. Last pair of uropoda somewhat less robust, basal joint about the length of the other 2 combined, and armed with 5 denticles. Telson comparatively shorter and broader than in *P. gregarium,* and armed with only 3 pairs of dorsal denticles. Colour uniformly whitish, without any pigmentation;

ova in the marsupial pouch reddish. Length of adult female 5 mm, of male 6 mm.

Remarks. — Though nearly allied to *P. gregarium*, and evidently congeneric, the present species may readily be distinguished by the somewhat different form of the 2nd and 4th pairs of coxal plates, the very large eyes, the structure of the posterior gnathopoda in the 2 sexes, and by the very much produced meral joint of the 3 posterior pairs of pereiopoda, which latter characteristic has, indeed, given rise to the specific name. In the living state the species is moreover at once recognized by its uniformly whitish body, and by the light red ocular pigment.

Occurrence. — I have met with this form in a few places off the west coast of Norway, Lyngholmen, Bekkervig and Christiansund, as also in the Trondhjemsfjord, and northwards to Tjøtø off the Nordland coast. It is a true deep-water form, occurring only in depths varying from 80 to 150 fathoms, and especially in the region of the deep-sea corals. Out of Norway, it has not yet been recorded.

Gen. 3. **Metopa,** Boeck, 1870.

Syn: Leucothe, Krøyer (not Leach).
» Montagua, Sp. Bate (part).

Body more or less compact of form, with rather deep coxal plates, the 4th pair of which are very large and broad. Antennæ more or less slender, their mutual length different in the different species. Anterior and posterior lips about as in the preceding genus. Mandibles likewise of a much similar structure, and provided with distinct though rather small palps. First pair of maxillæ with the palp only consisting of a single joint. Maxillipeds with the basal lobes coalesced nearly to the tip. Gnathopoda very unequal; the anterior ones rather small, and, as a rule, imperfectly subcheliform, the posterior ones more or less powerful, distinctly subcheliform, and generally larger and somewhat differently shaped in the adult male, meral joint not acutely produced below. Anterior pairs of pereiopoda about as in *Probolium*, the 3 posterior pairs, as a rule, somewhat more elongated. Uropoda and telson about as in the 2 preceding genera.

Remarks. — This genus, established by Boeck, was distinguished by that author from the genus *Stenothoe* chiefly by the mandibles having distinct palps, and by the palp of the 1st pair of maxillæ being uniarticulate. In the first of these characteristics it agrees with the genus *Probolium*, whereas in the second it differs from both these genera, and approaches the genus *Cressa* of Boeck. Another characteristic, quite peculiar to the present genus, may be added, viz., the nearly complete coalescence of the basal lobes of the maxillipeds. The genus comprises numerous species, most of which would seem to be restricted to the Northern Oceans. As to the species of *Metopa* described by the Rev. Mr. Stebbing from the Challenger Expedition, I am somewhat in doubt about their true position, since the palp of the 1st pair of maxillæ is represented as biarticulate, and the basal lobes of the maxillipeds as not coalesced; this is at least not the case with any of the northern species examined by me. The specific distinction is, in this genus, connected with quite peculiar difficulties, owing both to the small size of the animals, and to the often very pronounced sexual difference. Moreover some species are so very nearly related as to be scarcely distinguishable from each other without a very close examination. It may thus be easily understood, that our knowledge of the species has, as yet, been very imperfect, and that until lately distinct species have been confounded with each other or wrongly determined. In making out the Norwegian species of this genus, I have myself had a great advantage over most other authors, in so far as I have been enabled, during my numerous voyages, not only to bring together a vast material for investigation, but also to examine most of the species in the living state. Such an examination is very useful; for in the living animal the specific characteristics generally appear far more distinct than in specimens preserved in alcohol, and often even the coloration of the body alone will suffice to identify at once the species. In Boeck's work only 5 species of this genus were recorded as occurring off the Norwegian coast. In the following pages, I propose to describe no less than 21 Norwegian species, 8 of which are now for the first time established. Moreover 2 arctic species were a long time ago described by Krøyer as *Leucothoe clypeata* and *glacialis,* and more recently, Dr. Hansen has added 3 new species from Greenland, *M. grønlandica, latimana* and *carinata;* finally, a species, *M. æqvicornis*, was described by the author from the Norwegian North Atlantic Expedition.

9. **Metopa Alderi** (Sp. Bate).

(Pl. 86).

Montagua Alderi, Sp. Bate, Cat. Amph. Brit. Mus. p. 57, Pl. VIII, fig. 6.
Syn: Leucothoe norvegica, Lilljeborg (male).
» Metopa clypeata var. Boeck (male)

Body rather high and compressed, but with the back broadly rounded. Cephalon scarcely twice as long as the 1st segment of mesosome, lateral corners forming on each side a rather broad lobe truncated at the tip. Second pair of coxal plates rather narrow, and obliquely curved in front, outer part tapering to an obtuse point; 3rd pair scarcely expanded distally, and about twice as deep as the corresponding segment; 4th pair much larger than the 2 preceding pairs combined, distal edge rather oblique, and evenly curved. Last pair of epimeral plates of metasome but very little produced at the lateral corners, and nearly rectangular, posterior edge straight. Eyes rather large, rounded oval, with well-developed visual elements and dark red pigment. Superior antennæ scarcely half the length of the body, and much shorter than the inferior, reaching in female a little beyond the peduncle of the latter, 1st joint of the peduncle as long as the other 2 combined, and equalling the length of the cephalon, flagellum about half as long again as the peduncle. Inferior antennæ rather strong, especially in the male, the 2 outer joints of the peduncle being strongly chitinized and rather elongated, flagellum comparatively small, and more or less abruptly curved. Anterior gnathopoda rather small, meral joint not very much produced at the end inferiorly, propodos about the length of the carpus, and scarcely broader, its inferior edge but very slightly curved in the middle. Posterior gnathopoda rather powerful, especially in the male, meral joint continued inside, above the terminal articulation, as a thin triangular lamella, somewhat overlapping the upper edge of the carpus, propodos in female nearly as long as the basal joint, and oblong oval in form, palm oblique, about as long as the hind margin, and defined by a dentiform projection armed with 2 small spinules, its edge somewhat flexuous, front part armed with about 8 strong denticles diminishing in size anteriorly, hind part deeply sinuated; propodos in male much larger than in female, and having inferiorly, about in the middle, a deep and broad sinus, defined behind by an acuminate projecting lappet, anterior part of the palm forming a lamellar expansion divided into 5—6 strong denticles. Pereiopoda moderately strong, meral joint of the 3 posterior pairs somewhat expanded, and considerably produced at the infero-posteal corner, basal joint of last pair scarcely larger than that of the penultimate pair, and slightly widening below. Last pair of uropoda with the basal joint nearly as long as the other 2 combined, and armed with 5 extremely small denticles. Telson rather large, oblong oval in form, not quite twice as long as it is broad, and without any trace of dorsal denticles, outer part evenly rounded off at the tip. Body whitish, pellucid, with a few scattered reddish patches, sometimes arranged as obliquely transverse bands. Length of adult female 7 mm, of male about the same.

Remarks. — The present species, first described by Sp. Bate, is regarded by Boeck as the type of the present genus. It may be distinguished from most of the other known species by the strong development of the inferior antennæ, and by the structure of the posterior gnathopoda in the 2 sexes. The *Leucothoe norvegica* of Lilljeborg seems to be founded upon the adult male of this species, at least to judge from the figure given by Sp. Bate of one of the posterior gnathopoda of this form. Also the figure given in Boeck's work of the same legs, and referred to «*Metopa clypeata* var.», is undoubtedly drawn from a male specimen of the present species.

Occurrence. — Off the south and west coasts of Norway this species is found not infrequently in moderate depths, from 20 to 60 fathoms. It extends northwards at least to Tromsø, where it has been collected by Mr. Schneider.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), Spitsbergen (Goës), the Murman coast (Jarzynsky), Iceland (Norw. North Atl. Exp.).

10. **Metopa spectabilis**, G. O. Sars.

(Pl. 87).

Metopa spectabilis, G. O. Sars, Crust. & Pygnog. nova etc. No. 28.

Very like the preceding species, but more than twice as large and comparatively more slender of form. Cephalon with the lateral lobes somewhat narrower, and obtusely rounded at the tip. Coxal plates nearly as in *M. Alderi*. Last pair of epimeral plates of metasome likewise very similar in form, though the lateral corners appear somewhat more sharpened and the posterior edge slightly flexuous. Eyes comparatively much smaller than in *M. Alderi*, and of rounded form, pigment dark red. Antennæ very unequal, the superior ones being in both sexes much shorter than the peduncle of the inferior, their 1st joint rather elongated, considerably longer than the cephalon, and equalling in length the 2 succeeding ones combined, flagellum but little longer than the peduncle. Inferior antennæ very strong, especially in the male, nearly pediform, the 2 outer joints of the peduncle much elongated and highly chitinized, flagellum very small, and abruptly curved. Anterior gnathopoda nearly as in *M. Alderi,* except that the propodos appears somewhat smaller in proportion to the carpus. Posterior gnathopoda likewise rather similar to those in the said species, though perhaps somewhat more powerful, propodos in female with the palm comparatively more oblique, and exceeding in length the hind margin, its posterior sinus considerably deeper; that of the male very large, nearly occupying half the length of the leg, the acuminate lappet of the inferior edge much more produced than in the male of *M. Alderi,* and the sinus in front of it deeper, anterior part of the propodos narrower and more produced, with the lamellar expansion below the dactylus somewhat differently shaped, and having the lower denticle much larger than the others. Pereiopoda of much the same structure as in the preceding species. Last pair of uropoda with the basal joint fully as long as the other 2 combined, and armed with 5 small denticles. Telson comparatively narrower than in *M. Alderi,* fully twice as long as it is broad, and somewhat narrowed in its outer part. Body whitish, pellucid, with a few small reddish patches. Length of adult female reaching 14 mm.

Remarks. — This form is so closely allied to *M. Alderi,* that its specific distinctness could perhaps be questioned. Yet there are some apparently constant characteristics, by which it may easily be distinguished from the above-named species. Thus the eyes are comparatively smaller, the antennæ much more unequal, and the structure of the posterior gnathopoda, though built upon the same type, yet somewhat different in both sexes, not to speak of the great difference between the 2 species, as regards size.

Occurrence. — The only place off the coast of Norway, where I have met with this form, is at Hammerfest, Finmark. It occurred here rather sparingly, in a depth of 50—80 fathoms, among Hydroidæ.

Distribution. — Stat. 31 and 343 of the Norwegian North Atlantic Expedition.

11. **Metopa Boeckii**, G. O. Sars, n. sp.

(Pl 88).

Syn: Metopa Bruzelii, Boeck (not Goës).
» Metopa borealis, G. O. Sars (part).

Body considerably more slender and compressed than in the 2 preceding species. Cephalon nearly twice as long as the 1st segment of mesosome, lateral corners somewhat projecting, and angular at the tip. Coxal plates rather large, 2nd pair scarcely tapering distally, terminal edge obliquely curved; 3rd pair slightly widening below, and more than twice as deep as the corresponding segment; 4th pair larger than the 2 preceding pairs combined, distal edge strongly curved in the middle. Last pair of epimeral plates of metasome somewhat produced at the lateral corners. Eyes of moderate size, rounded, pigment dark red. Antennæ rather slender, the superior ones considerably exceeding half the length of the body, 1st joint of the peduncle much longer than the cephalon, 2nd joint still longer, flagellum half as long again as the peduncle, and very slender. Inferior antennæ in female somewhat shorter than the superior, with the 2 outer joints of the peduncle nearly equal-sized, and the flagellum about the length of the last peduncular joint; those in male comparatively stronger and more elongated, with the flagellum shorter. Anterior gnathopoda slender and feeble, meral joint but little produced, propodos somewhat shorter than the carpus, and scarcely broader. Posterior gnathopoda rather powerful, meral joint simple, without any ascending lamella inside, propodos in female shorter than the basal joint, triangular oval in form, gradually expanded distally, palm somewhat oblique, and shorter than the hind margin, from which it is defined by a sharp, dentiform projection armed with 2 spinules, its edge nearly straight, and coarsely dentated in its anterior half, more minutely in the posterior part; those of male considerably larger, with the propodos produced inferiorly in the middle to a conico-acuminate process, defined in front by a deep angular incision, anterior part of the palm coarsely dentated. Pereiopoda much more slender than in the 2 preceding species, with the meral joint far less expanded, basal joint of the 2 last pairs oblong oval in form. Last pair of uropoda rather slender, basal joint about the length of the other 2 combined, and armed with 4 rather coarse denticles. Telson oblong oval, scarcely twice as long as it is broad, and armed with 3 pairs of strong dorsal denticles, outer part tapering to a sharp point. Body whitish, pellucid, with scattered dark brownish red patches; ova in the marsupial pouch bluish. Length of adult female 6 mm, of male about the same.

Remarks. — I have formerly confounded this form with that named by me as *M. borealis.* Only the habitus figure given in my «Oversigt» refers to the latter species, whereas the figure of the 2nd gnathopod belongs to the present species. The form described by Boeck as *M. Bruzelii*, appears to be this species, and is very different from that so named by Goës, which will be described and figured in the sequel. The comparatively slender and elongated antennæ and pereiopoda, as also the structure of the posterior gnathopoda in the two sexes, will suffice to distinguish this species from its nearest allies. From the 2 preceding species it is moreover at once distinguished by the form and armature of the last pair of uropoda and of the telson.

Occurrence. — I have hitherto met with this species only in a few places, viz., at Tjøtø, off the Nordland coast, and at Hammerfest, Finmark. Boeck records it from Haugesund, west coast of Norway, and Mr. Schneider has quite recently collected it rather abundantly in the neighbourhood of Tromsø. I have no knowledge of its having been found out of Norway.

12. **Metopa borealis**, G. O. Sars.

(Pl. 89, fig. 1).

Metopa borealis, G. O. Sars, Overs. Norges Crust. I, p. 91, Pl. 4, fig. 4. (but not fig. 4 a).

Body rather stout and somewhat resembling that of *M. Alderi.* Cephalon scarcely twice as long as the 1st segment of mesosome, lateral corners evenly rounded off. Coxal plates large; 2nd pair with the anterior edge strongly curved in the middle, tip obtusely pointed; 3rd pair about twice as deep as the corresponding segment, and about of same breadth throughout; 4th pair much larger than the 2 preceding pairs combined, and about as broad as they are deep, distal edge rather oblique, and but slightly curved. Last pair of epimeral plates of metasome with the lateral corners acutely produced. Eyes not very large, rounded, pigment dark red. Antennæ comparatively short, the superior ones scarcely exceeding in length a 3rd part of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum half as long again as the peduncle, and composed of about 12 articulations. Inferior antennæ scarcely longer than the superior, last joint of the peduncle a little exceeding the length of the penultimate one, flagellum about the same length. Anterior gnathopoda comparatively small, meral joint but little produced at the end inferiorly, propodos about the length of the carpus, and of regular oblong oval form. Posterior gnathopoda moderately strong, meral joint without any distinct ascending lamella inside, propodos much shorter than the basal joint, and very slightly expanded distally, palm somewhat oblique and about the length of the hind margin, from which it is defined by a distinct dentiform projection, its edge nearly straight, and coarsely dentated throughout, some of the denticles being stronger than the rest. Pereiopoda much stronger than in *M. Boeckii* and more resembling those in *M. Alderi*; last pair with the basal joint regular oval in form, meral joint rather dilated, and considerably produced at the infero-posteal corner. Last pair of uropoda rather short, basal joint not nearly attaining the length of the other 2 combined, and armed with only

2 very minute denticles. Telson oblong oval in form, about twice as long as it is broad, and quite unarmed, tip obtusely rounded. Colour in the living state of the animal, not yet stated. Length of adult female 5 mm.

Remarks. — As before stated, I had previously fallen into a grave error in confounding this form with that described above as *M. Boeckii.* It is indeed on a closer inspection easily distinguishable from that species, not only by its comparatively much stouter body, but also by the far less slender antennæ and pereiopoda, and finally by the unarmed telson. In these points it bears a much closer resemblance to *M. Alderi*, from which it however may at once be distinguished by the comparatively short and equal-sized antennæ, and by the somewhat deviating structure of the posterior gnathopoda. The form recorded under this name, but with some doubt, from Greenland by Dr. Hansen, is most probably the present species, at least to judge from the figure of one of the posterior gnathopoda given.

Occurrence. — For the cause mentioned above, I am at present unable to indicate with certainty the localities, where this species occurred, but believe them to have belonged either to the west coast of Norway or to the coast of Finmark, most probably to both of them.

Distribution. — Greenland (Hansen). —

13. **Metopa rubrovittata**, G. O. Sars.

(Pl. 89, fig. 2).

Metopa rubrovittata, G. O. Sars, Overs. Norges Crust. I, p. 90, Pl. 4, fig. 2, 2 a.

Body rather stout and compact. Cephalon about twice as long as the 1st segment of mesosome, lateral corners distinctly angular at the tip. Coxal plates very large and deep; 2nd pair obliquely truncated at the end; 3rd pair considerably more than twice as deep as the corresponding segment, and scarcely expanded distally; 4th pair very largely developed, nearly twice as large as the 2 preceding pairs combined, and subelliptical in form, the breadth being considerably greater than the depth, distal edge less oblique, and evenly curved throughout. Last pair of epimeral plates of metasome considerably produced at the lateral corners, though the tip is obtusely pointed. Eyes comparatively small, rounded, pigment dark red. Antennæ not very elongated, the superior ones scarcely exceeding in length the third part of the body, 1st joint of the peduncle fully as long as the cephalon, and somewhat exceeding the length of the other 2 combined, flagellum scarcely half as long again as the peduncle, and composed of about 10 articulations. Inferior antennæ a little shorter than the superior, the 2 last joints of the peduncle nearly equal-sized, flagellum longer than those joints combined. Anterior gnathopoda with the meral joint but little produced at the end inferiorly, propodos about the length of the carpus, but somewhat narrower, inferior edge with a single denticle about in the middle. Posterior gnathopoda rather powerful, meral joint without any trace of an ascending lamella inside, propodos very large, nearly as long as the basal joint, and oblong quadrangular in form, gradually widening, somewhat distally, palm nearly transverse, and much shorter than the hind margin, from which it is defined by a strong acute projection, its edge somewhat arcuate, and regularly serrated. Pereiopoda somewhat less robust than in *M. borealis*; last pair with the basal joint oblong oval in form, meral joint produced nearly to the end of the carpal one. Last pair of uropoda with the basal joint very short, not exceeding the length of the succeeding one, and only armed with a single small denticle at the end. Telson quite unarmed, and rather elongated, more than twice as long as it is broad, tip obtusely rounded. Body whitish pellucid, banded with narrow stripes of a beautiful crimson colour, the bands extending obliquely down the coxal plates in a somewhat wavy manner; ova in the marsupial pouch bluish. Length of adult female 4 mm.

Remarks. — The present species shows some points of resemblance both to *M. Alderi* and *M. borealis*, though being easily distinguishable from either of them, not only by the beautiful colouring of the body, but also by the rather characteristic structure of the posterior gnathopoda.

Occurrence. — I first detected this form at Christiansund, west coast of Norway, where 2 specimens were collected from a depth of about 30 fathoms. A third specimen I procured at Vadsø, Finmark.

Distribution. — The Dutch coast (Hoek); Kattegat (Meinert).

14. **Metopa pusilla,** n. sp.

(Pl. 90, fig. 1.)

Body rather short and compressed, with the metasome (in female) poorly developed. Cephalon about twice the length of the 1st segment of mesosome, lateral corners sharply angular at the tip. Coxal plates very large; 2nd pair obliquely curved in front; 3rd pair more than twice as deep as the corresponding segment, and scarcely expanded distally; 4th pair somewhat larger than the 2 preceeding pairs combined, and nearly as deep as they are broad, distal edge strongly curved in the middle. Last pair of epimeral plates of metasome not very much produced, though terminating with a sharp corner. Eyes very minute, rounded, pigment dark red. Antennæ rather slender, the superior ones exceeding half the length of the body, 1st joint of the peduncle about the length of the cephalon, 2nd joint scarcely shorter, flagellum half as long again as the peduncle, and composed of about 11 articulations. Inferior antennæ nearly as long as the superior, the 2 last joints of the peduncle rather slender, and about equal-sized, flagellum half the length of the peduncle. Anterior gnathopoda rather feeble, meral joint but little produced at the end inferiorly, carpus comparatively elongated, propodos considerably shorter, and nearly linear in form. Posterior gnathopoda moderately strong, propodos nearly triangular in form, gradually widening distally, palm somewhat oblique, but shorter than the hind margin, from which it is defined by a rather strong acute projection, its edge nearly straight and slightly serrated. Same legs in male but little different, having only the propodos somewhat more elongated. First pair of pereiopoda rather slender and elongated; the 3 posterior pairs successively diminishing in length, and having the propodal joint rather elongated, and the dactylus strong and curved; last pair with the basal joint scarcely more than half as long as the remaining part of the leg, and regular oval in form, meral joint produced beyond the middle of the carpal one. Last pair of uropoda rather slender, basal joint scarcely longer than the 2nd, and armed with 2 denticles only, terminal joint elongated, mucroniform. Telson oblong oval, nearly twice as long as it is broad, and armed with 2 pairs of dorsal denticles. Body whitish pellucid, with a row of stellated pigmentary patches of a dark brownish gray hue along the back, coxal plates partly tinged with a similar pigment, and besides with a light greenish colouring. Length of adult female scarcely exceeding 3 mm.

Remarks. — I have formerly erroneously confounded this species with *M. Bruzelii* of Goës, from which it is however readily distinguished by the more slender, antennæ and the rather different structure of the posterior gnathopoda. When alive, it is moreover at once distinguished from most other species by its peculiar coloration.

Occurrence. — I have met with this diminutive species in several places, both on the south and west coasts of Norway, as also in the Trondhjemsfjord. It occurs, as a rule, in comparatively shallow water among algæ and Hydroidæ.

15. **Metopa longicornis,** Boeck.

(Pl. 90, fig. 2).

Metopa longicornis, Boeck, Crust. amphip. bor. & arctica. p. 63.

Body somewhat resembling that of the preceding species, though being perhaps a little more slender, and having the metasome more fully developed. Cephalon twice as long as the 1st segment of mesosome, lateral corners somewhat produced but blunted at the tip. Coxal plates rather deep, and nearly of same form as in *M. pusilla.* Last pair of epimeral plates of metasome somewhat more produced at the lateral corners, though not forming any sharp angle. Eyes of moderate size, rounded. Antennæ rather elongated. the superior ones exceeding half the length of the body, 1st joint of the peduncle somewhat longer than the cephalon, 2nd joint about the same length, flagellum scarcely longer than the peduncle, and composed of about 20 articulations. Inferior antennæ about the length of the superior, last joint of the peduncle a little shorter than the penultimate one, flagellum about of same length as the former. Anterior gnathopoda of moderate size, propodos fully as long as the carpus, and slightly dilated in the middle, its inferior edge having in addition to the setæ a row of about 7 minute spinules. Posterior gnathopoda comparatively feeble in structure, and scarcely longer than the anterior, propodos oblong triangular, and much narrower than in *M. pusilla*, palm rather oblique and nearly as long as the hind margin, from which .it is defined by a small dentiform projection, its edge quite smooth, having only a few fine hairs. Pereiopoda comparatively less strong than in the said species, especially the 3 posterior pairs, in each of which the meral joint is rather narrow, sublinear in form, and but very slightly produced at the infero-posteal corner; last pair with the basal joint exceeding half the length of the remaining part of the leg, and somewhat irregularly oval in form, its posterior edge being abruptly curved in the middle. Last pair of uropoda with the basal joint nearly as long as the other 2 combined, and armed with 3 rather strong denticles. Telson oblong in form, fully twice as long as it is broad, and armed with 3 pairs of strong dorsal denticles, tip blunted. Colour in the living state of the animal, not yet stated. Length of adult female 4 mm.

Remarks. — The present species, established by Boeck, would seem to be most nearly allied to *M. pusilla*, from which it is however easily distinguishable by the still more elongated antennæ, the much larger eyes, the feeble structure of the posterior gnathopoda, and the narrow linear form of the meral joint in all the pereiopoda. It moreover attains a much larger size than the said species.

Occurrence. — I have not myself met with this species, but Boeck states its occurrence in the Christianiafjord and at Brettesnæs, Lofoten Isles. The figures here given are from Greenlandic specimens, kindly sent me by Dr. Hansen.

Distribution. — Greenland (Hansen).

16. **Metopa tenuimana,** n. sp.

(Pl. 91, fig. 1).

Very similar in outer aspect to the 2 last-described species. Cephalon scarcely twice as long as the 1st segment of mesosome, lateral corners angular at the tip. Coxal plates somewhat less deep than in the said 2 species; 4th pair considerably broader than they are deep, distal edge oblique and evenly curved. Last pair of epimeral plates of metasome considerably produced at the lateral corners. Eyes of moderate size, rounded. Antennæ not nearly so much elongated as in the 2 last-described species, the superior ones not attaining, by far, half the length of the body, 1st joint of the peduncle about the length of the cephalon, 2nd much shorter, flagellum considerably exceeding the length of the peduncle, and composed of about 9 articulations. Inferior antennæ somewhat shorter than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum about the length of those joints combined. Anterior gnathopoda with the propodos scarcely as long as the carpus, and gradually tapering distally, its inferior edge without any denticles. Posterior gnathopoda rather feeble, and somewhat resembling those in *M. longicornis*, propodos very slender, and comparatively more elongated than in that species, palm not attaining the length of the hind margin, and defined below by a distinct dentiform projection, its edge quite smooth. Pereiopoda rather similar to those in *M. pusilla*, though perhaps somewhat less powerful; last pair with the basal joint regularly oval in form, and exceeding half the length of the remaining part of the leg, meral joint produced nearly to the end of the carpal one. Last pair of uropoda with the basal joint rather short, scarcely exceeding in length the 2nd, and only armed with a single small denticle at the end, terminal joint shorter than the preceding one. Telson of the usual oblong linguiform shape, and armed with one or 2 pairs of dorsal denticles, tip narrowly rounded. Colour in the living state of the animal, not yet stated. Length of adult female 3 mm.

Remarks. — Though very like *M. pusilla* both in its outer appearance and in size, this new species is, on closer examination, easily distinguishable by the comparatively larger eyes, the much shorter antennæ, and by the feeble structure of the posterior gnathopoda, in which latter respect, it agrees more closely with *M. longicornis.*

Occurrence. — It is only quite recently that I have been aware of this new species, some few specimens of which were found mingled with *M. pusilla* from the west coast of Norway. The exact locality where the specimens in reality occurred, I am, however, at present unable to state.

17. **Metopa affinis,** Boeck.

(Pl. 91, fig. 2).

Metopa affinis, Boeck, Crust. amphip. bor. & arctica, p. 62.

? Syn: Metopa latimana, Hansen.

Body (in male) rather slender, and not very much compressed. Cephalon not nearly twice as long as the 1st segment of mesosome, lateral corners rounded at the tip. Coxal plates smaller than usual; 2nd pair oblong oval in form, with the anterior edge but slightly curved and the tip blunted; 4th pair rather oblique, much broader than they are deep, distal edge nearly straight. Last pair of epimeral plates of metasome but very slightly produced at the lateral corners, and nearly rectangular. Eyes small, rounded. Antennæ rather unequal, the superior ones very much elongated, 1st joint of the peduncle exceeding in length the cephalon, 2nd a little shorter, flagellum nearly twice as long as the peduncle, and less slender than in most other species. Inferior antennæ much shorter than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum attaining the length of those joints combined, Anterior gnathopoda rather strong and of somewhat unusual shape, meral joint forming inferiorly a rather broad setiferous dilatation, carpus nearly as long as the basal joint, and somewhat subfusiform in outline, propodos a little shorter and much narrower, nearly linear in form, dactylus unusually short and stout, setous on the inner edge. Posterior gnathopoda very powerfully developed, carpus considerably dilated and projecting at the end inferiorly as a rather large setiferous lobe, propodos very large and broad, subquadrate in form, though somewhat widening distally, palm nearly transverse, and shorter than the hind margin, from which it is defined by a distinct though small dentiform projection, its edge smooth and very slightly curved. Pereiopoda unusually strongly built, and of considerable size, propodos in all of them very powerful and somewhat curved, dactylus strong and falciformly curved; last pair with the basal joint comparatively small, and oval quadrangular in form, meral joint strongly dilated, with the posterior edge arched and the infero-posteal corner produced, propodal joint fully as long as the 2 preceding joints combined. Last pair of uropoda with the basal joint somewhat lamellar, and of quadrangular form, about the length of the 2nd, and armed with a single denticle at the end. Telson scarcely twice as long as it is broad, and quite unarmed, tip bluntly rounded. Colour in the living state of the animal not yet stated. Length of the specimen examined 3 mm.

Remarks. — The specific name *affinis*, proposed for this form by its detector, Boeck, is somewhat inappropriate, since the present species is, in fact, a most distinct one, scarcely at all resembling any other of the known Norwegian species. The figures here given are drawn from Boeck's type specimen, which by dissection was found to be a male. Dr. Hansen has recorded a very nearly allied form from Greenland, under the name of *M. latimana*. Having recently had an opportunity, through the kindness of that naturalist, to examine his type specimen, I find it, in fact, to agree so closely in all essential characteristics with the one here described, that I have little doubt that both belong to the very same species. True there is, as mentioned by Dr. Hansen, a slight difference in the form of the gnathopoda, but this may, at least as regards the posterior ones, arise from the sex being different in the 2 specimens in question, that of Boeck being a male, whereas that of Hansen most probably is a female.

Occurrence. — The type specimen of Boeck was collected in the Christianiafjord. That author records it also from two other localities, viz., Hvitingsø, west coast of Norway, and Skraaven, Lofoten Isles.

Distribution. —? Greenland (Hansen).

18. **Metopa Bruzelii** (Goës).

(Pl. 92, fig 1).

Montagua Bruzelii, Goës, Crust. Amph. maris Spitsbergiam alluentis, Öfvers. Kgl. svenska Vetensk. Akad. förhandl. 1865, p. 522, Pl. XXXVIII, fig. 10.

Body moderately slender, and somewhat compressed. Cephalon but little longer than the 1st segment of mesosome, lateral corners angular at the tip. Coxal plates of moderate size; 2nd pair obtusely rounded at the tip; 3rd pair scarcely twice as deep as the corresponding segment; 4th pair much broader than they are deep, distal edge obliquely curved. Last pair of epimeral plates of metasome distinctly angular at the lateral corners. Eyes of moderate size, rounded, pigment dark red. Antennæ comparatively short, the superior ones scarcely exceeding in length the third part of the body, 1st joint of the peduncle a little shorter than the cephalon, but longer than the 2 succeeding joints combined, flagellum half as long again as the peduncle, and composed of about 12 articulations. Inferior antennæ scarcely shorter than the superior, the 2 outer joints of the peduncle about equal-sized, flagellum a little shorter than those joints combined. Anterior gnathopoda of the usual structure, propodos about the length of the carpus, and gradually tapering distally, inferior edge without any denticles. Posterior gnathopoda not very strong, propodos in female about the length of the 3 preceding joints combined, oval in form, palm somewhat oblique, and about as long as the hind margin, from which it is defined only by a slight angular projection, its edge quite smooth, saving the 2 usual spinules in front of the lower angle; propodos of male considerably larger, though of a similar form to that of the female. Pereiopoda moderately strong, last pair with the basal joint rounded oval, meral joint produced beyond the middle of the carpal one. Last pair of uropoda with the basal joint nearly as long as the other 2 combined, and armed with 4 denticles. Telson fully twice as long at it is broad, and armed with 2 pairs of strong dorsal denticles, outer part tapering to an acute point. Body whitish pellucid, with a few small and irregular patches of an orange or reddish pigment; ova in the marsupial pouch bluish. Length of adult female 4 mm.

Remarks. — I cannot doubt that the above described form is the true *M. Bruzelii* of Goës, agreeing as it does, in all essential characteristics, with the description and figures given by that author. It was, moreover, the only species of Metopa collected during the Norwegian North Atlantic Expedition off the shores of Spitsbergen, from which tract also the original specimens examined by Goës were derived. The species may, on closer examination, be easily distinguished from those previously described, by the rather regular oval form of the propodos of the posterior gnathopoda, and by the very slight projection defining its palm below.

Occurrence. — I have met with this species rather abundantly in two widely-distant localities, viz., at Bratholmen, west coast of Norway, and at Hammerfest, Finmark. Moreover it is found not rarely in the Trondhjemsfjord, both in its outermost part, at Bejan, and in its inner part, at Vennæs. As a rule, it occurs in moderate depths, from 30 to 60 fathoms, especially among Hydroidæ.

Distribution. — Spitsbergen (Goës), Greenland (Hansen).

19. **Metopa sinuata**, n. sp.

(Pl. 92, fig. 2).

Syn: *Metopa Bruzelii,* Hansen (part).

Body somewhat shorter and stouter than in *M. Bruzelii*, though rather compressed. Cephalon considerably exceeding in length the 1st segment of mesosome, lateral corners somewhat more produced than in the said species, and angular at the tip. Coxal plates rather large; 2nd pair obliquely rounded at the tip; 3rd pair fully twice as deep as the corresponding segment, and slightly widening distally; 4th pair considerably broader than they are deep, and of a very characteristic form, the distal edge being not, as usual, evenly curved, but distinctly sinuated in the middle. Last pair of epimeral plates of metasome rather produced at the lateral corners. Eyes somewhat larger than in *M. Bruzelii*, and irregularly rounded. Antennæ comparatively very short and stout, the superior ones not even attaining $\frac{1}{3}$ of the length of the body, 1st joint of the peduncle about the length of the cephalon, and exceeding that of the 2 succeeding joints combined, flagellum but little longer than the peduncle, and composed of about 12 articulations. Inferior antennæ about the length of the superior, the 2 outer joints of the peduncle rather thick, and about of equal length, flagellum shorter than those joints combined. Anterior gnathopoda comparatively rather strong, and scarcely shorter than the posterior ones, propodos longer than the carpus, slightly dilated in the middle, and armed on the inferior edge with a series of about 5 small denticles in addition to the setæ. Posterior gnathopoda comparatively stronger than in *M. Bruzelii*, though of a somewhat similar structure, propodos in female longer than the 3 preceding joints combined, oblong oval in form, palm rather oblique, and about the length of the hind margin, from which it is defined by a slight angular projection, its edge minutely serrated; propodos in male considerably larger and broader, with the palm less oblique, and the lower corner more projecting. Pereiopoda rather strongly built; last pair with the basal joint broadly oval in form, meral joint considerably produced at the infero-posteal corner, which reaches even a little beyond the carpal joint. Last pair of uropoda with the basal joint not quite so long as the other 2 combined, and armed with 2 denticles only. Telson about twice as long as it is broad, with 2 pairs of dorsal denticles, tip obtusely rounded. Colour in the living state of the animal not yet stated. Length of adult female 4 mm.

Remarks. — The present new species is nearly allied to *M. Bruzelii*, with which form it has indeed been confounded by Dr. Hansen. On a closer examination it is, however, easily distinguishable from that form especially.

by the rather deviating form of the 4th pair of coxal plates, as also by the more strongly produced meral joint of the 3 last pairs of pereiopoda.

Occurrence. — A few specimens of this form I have collected in 2 places off the Nordland coast, viz., Kvalø and Selsøvig, at a depth of 30 to 40 fathoms. Some other specimens were found in the Amphipodous collection of Boeck, but without any name or statement of locality,

Distribution. — Greenland (Hansen).

20. **Metopa propinqva,** n. sp.

(Pl. 93, fig. 1).

Form of body nearly as in *M. sinuata.* Cephalon about twice as long as the 1st segment of mesosome, lateral corners nearly rectangular. Coxal plates rather large; 2nd pair obliquely rounded at the tip; 3rd pair fully twice as deep as the corresponding segment, and scarcely widening distally; 4th pair of a very similar form to those in *M. sinuata,* the distal edge being distinctly sinuated in the middle, anterior corner somewhat more broadly rounded. Last pair of epimeral plates of metasome considerably produced at the lateral corners. Eyes rather large, rounded, pigment dark red. Antennæ much more elongated and slender than in *M. sinuata,* the superior ones nearly attaining half the length of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum more than half as long again as the peduncle, and very slender. Inferior antennæ shorter than the superior, the 2 outer joints of the peduncle nearly of equal length, flagellum fully as long as those joints combined. Anterior gnathopoda comparatively small, propodos shorter than the carpus, and much narrower, inferior edge without any denticles. Posterior gnathopoda rather powerful, propodos much longer than the 3 preceding joints combined, and rather expanded, palm scarcely as long as the hind margin, from which it is defined by an acutely produced projection, its edge distinctly serrated, dactylus rather strong. First pair of pereiopoda comparatively slender, the others powerfully developed; last pair with the basal joint irregularly rounded, the posterior edge bulging out considerably in the middle, meral joint rather large, and produced at the end posteriorly, to a curved lobe reaching beyond the carpal joint. Last pair of uropoda with the basal joint shorter than the other 2 combined, and armed with 3 unusually strong denticles blunt at the tip. Telson oblong linguiform, more than twice as long as it is broad, and armed with 3 pairs of strong dorsal denticles, tip narrowly rounded. Body whitish pellucid, with a row of dark brownish stellated pigmentary spots along the back and a few shadows of same colour on the sides. Length of adult female scarcely exceeding 3 mm.

Remarks. — Though exhibiting much the same characteristic form of the 4th pair of coxal plates as in *M. sinuata*, this new species may at once be distinguished from that form by the much more slender and elongated antennæ, the comparatively stronger posterior gnathopoda, the peculiar curved form of the meral process of the 3 posterior pereiopoda, and finally by the very strong denticles of the last pair of uropoda and of the telson.

Occurrence. — I found, last summer, a few specimens of this form in the Trondhjemsfjord at 2 different places, viz., at Bejan and Rødbjerget. They occurred in both places together with *Cressa dubia* in a depth of about 40 fathoms.

21. **Metopa leptocarpa**, G. O. Sars.

(Pl. 93, fig. 2).

Metopa leptocarpa, G. O. Sars, Overs. Norges Crust. I, p. 91, Pl. 4, fig. 3.

Body more slender than usual, and not very compressed. Cephalon about twice as long as the 1st segment of metasome, lateral corners angular at the tip. Coxal plates of moderate size; 2nd pair somewhat expanded distally, with the anterior edge boldly curved; 3rd pair about twice as deep as the corresponding segment, 4th pair scarcely larger than the 2 preceding pairs combined, and a little broader than they are deep, distal edge evenly curved. Last pair of epimeral plates of metasome rather produced at the lateral corners. Eyes not very large, rounded. Antennæ comparatively short; the superior ones scarcely exceeding in length the third part of the body, 1st joint of the peduncle about the length of the cephalon, and scarcely as long as the 2 succeeding joints combined, flagellum a little shorter than the peduncle, and composed of about 9 articulations. Inferior antennæ about the length of the superior, last joint of the peduncle a little shorter than the penultimate one, flagellum half the length of the peduncle. Anterior gnathopoda of a rather unusual aspect, very slender and even longer than the posterior ones, carpus extremely narrow and elongated, with only a few small setæ on the inferior edge, propodos much shorter, oblong quadrangular in form, though gradually expanding somewhat, distally, palm nearly transverse, and distinctly defined below by a small projection. Posterior gnathopoda moderately strong, and of quite usual structure, propodos rather large, oval in form, palm somewhat oblique, scarcely shorter than the hind margin, and defined below by a distinct acute projection, its edge smooth, and slightly curved. Pereiopoda moderately strong; the 2 anterior pairs but little unequal; last pair with the basal joint oblong oval, and about the length of the 3 succeeding joints combined, meral joint not very much expanded, and produced a little beyond the middle of the carpal one. Last pair of uropoda with the basal joint a little longer than the succeeding one, and armed with 2 comparatively small denticles. Telson scarcely twice as long as it is broad, quite unarmed, and gradually tapering to the obtusely rounded tip. Colour in the living state of the animal not yet stated. Length of adult female 4 mm.

Remarks. — The very peculiar structure of the anterior gnathopoda will suffice for distinguishing this species from any other of the known forms. Otherwise it does not exhibit any essential difference from the usual type of the genus.

Occurrence. — I have only seen a solitary specimen, an ovigerous female, of this interesting form. It was collected, many years ago, at Christiansund, west coast of Norway, from a depth of 60 to 80 fathoms. Out of Norway, it has not yet been recorded.

22. **Metopa Sölsbergi**, Schneider.

(Pl. 94, fig. 1).

Metopa Sölsbergi, Schneider, «Bidrag til Kundskaben om Dyrelivet i de arktiske Fjorde» Tromsø Museum Aarshefter VII, p. 71, Pl. III & IV.

Body somewhat robust of form, and but little compressed, with the integuments unusually soft and thin. Cephalon scarcely twice as long as the 1st segment of mesosome, lateral corners obtusely rounded at the tip. Coxal plates of middle size; 2nd pair gradually tapering to the obtusely rounded tip; 3rd pair about twice as deep as the corresponding segment, and scarcely expanding distally; 4th pair somewhat larger than the 2 preceding pairs combined, and about as deep as they are broad, distal edge obliquely curved. Last pair of epimeral plates of metasome but little produced at the lateral corners, and nearly rectangular. Eyes of moderate size, rounded, pigment yellowish red. Antennæ rather slender, the superior ones considerably exceeding in length the third part of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum half as long again as the peduncle, and composed of about 14 articulations. Inferior antennæ nearly of same length as the superior, the 2 outer joints of the peduncle rather slender, and about equal-sized, flagellum half the length of the peduncle. Anterior gnathopoda comparatively rather strong, meral joint but little produced at the end inferiorly, propodos about the length of the carpus, and scarcely narrower, oblong oval in form, with 2 small denticles on the inferior edge. Posterior gnathopoda strongly developed, propodos about the length of the 3 preceding joints combined, oblong quadrangular in form, though slightly expanded distally, palm somewhat oblique, and about as long as the hind margin, from which it is defined only by an obtuse angle armed with 2 spinules, its edge smooth, with only a row of small bristles. Pereiopoda of rather robust structure, the first 2 pairs but little unequal, the 2 posterior pairs with the basal joint unusually narrow, oblong in form, and scarcely exceeding half the length of the remaining part of the leg, meral joint somewhat expanding, and produced to about the middle of the carpal one. Last pair of uropoda with the basal joint nearly as long as the other 2 combined, and armed with 4 very small denticles. Telson regularly linguiform, scarcely twice as long as it is broad, and quite unarmed, tip obtusely rounded. Colour, according to the the statement of Mr. Schneider, uniformly pale carneous or yellowish. Length of adult female nearly 6 mm.

Remarks. — This species established by Mr. Schneider, is a very distinct one, and may easily be distinguished from any of the other known forms by several well-marked characteristics. Its nearest ally would seem to be *M. Alderi*, from which it however is readily known by the equal-sized antennæ, and by the rather different structure of the posterior gnathopoda.

Occurrence. — I have myself only met with a solitary specimen of this form, which was collected in the Hardangerfjord, at Sunde. Mr. Schneider has, however, found it rather abundantly in the Malangen Fjord near Tromsø, on hard stony bottom overgrown with algæ. Out of Norway it has not yet been recorded.

23. **Metopa invalida**, n. sp.

(Pl. 94, fig. 2).

Syn: Metopa Alderi, Boeck (part).

Body comparatively stout and compact, with rather firm integuments. Cephalon about twice as long as the 1st segment of mesosome, lateral corners but little projecting, and blunt at the tip. Coxal plates rather large; 2nd pair much narrower than in *M. Sölsbergi*, with the anterior edge evenly curved and the tip narrowly rounded; 3rd pair fully twice at deep as the corresponding segment, and somewhat obliquely truncated as the tip; 4th pair considerably larger than the 2 preceding pairs combined, and broader than they are deep, distal edge but very slightly curved, posterior extremity evenly rounded off. Last pair of epimeral plates of metasome rather produced at the lateral corners. Eyes not very large, rounded, pigment bright red. Antennæ comparatively short, the superior ones scarcely exceeding in length the third part of the body, 1st joint of the peduncle about the length of the cephalon, but somewhat shorter than the 2 succeeding joints combined, flagellum scarcely as long as the peduncle, and composed of about 9 articulations. Inferior antennæ about the length of the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum scarcely exceeding the length of the last peduncular joint. Anterior gnathopoda of normal appearance, meral joint produced at the end inferiorly to a distinct setiferous projection, propodos about the length of the carpus, but scarcely as broad, somewhat tapering distally, and armed on the inferior edge with a single denticle about in the middle. Posterior gnathopoda comparatively feeble in structure, carpus produced at the end inferiorly to a rather large rounded lobe, densely setiferous at the tip, propodos rather narrow, oblong quadrangular in form, and slightly dilated distally, palm rather oblique, but shorter than the hind margin and defined from the same only by an obtuse angle, its edge nearly straight and quite smooth. Pereiopoda less strongly developed than in M. *Sölsbergi*; last pair with the basal joint much broader, and oval quadrangular in form, meral joint not very much expanded, and produced somewhat beyond the middle of the carpal one. Last pair of uropoda with the basal joint shorter than the other 2 combined, and armed with only 2 small denticles. Telson quite unarmed, and very narrow, nearly three times as long as it is broad, slightly constricted in front of the middle, tip obtusely pointed. Colour pale greyish white, each segment having dorsally a slight yellowish transversal band; ova in the marsupial pouch bluish. Length of adult female 4 mm.

Remarks. — Boeck has apparently confounded this very distinct species with *M. Alderi*¹), from which it may easily be recognized, among other characteristics, by the short equal-sized antennæ, and by the very different shape of the posterior gnathopoda. The specific name refers to the comparatively feeble structure of the latter legs.

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¹) The figs 4 and 4 k of Pl. XVII in Boeck's great work, undoubtedly belong to the present species, and not, as said in the text, to *M. Alderi*.

Occurrence. — I have met with this species in 2 localities, viz., at Hammerfest, Finmark, and at Selsövig, lying exactly within the polar circle. It occurred rather sparingly in a depth of 40 to 50 fathoms, among Hydroids.

24. **Metopa pollexiana,** (Sp. Bate).

(Pl. 95)

Montagua pollexiana, Sp. Bate, Catal. Amphip. British Mus. p. 57, Pl. IX, fig. 2.

Body rather slender and compressed, but with the back evenly rounded. Cephalon about twice the length of the 1st segment of mesosome, lateral corners broadly rounded off at the tip. Coxal plates of moderate size; 2nd pair a little expanded distally, and having a slight sinus behind the obtusely pointed tip; 3rd pair fully twice as deep as the corresponding segment; 4th pair about as large as the 2 preceding pairs combined, and somewhat broader than they are deep, distal edge but very slightly curved, posterior extremity bluntly rounded. Last pair of epimeral plates of metasome somewhat produced, and distinctly angular at the tip. Eyes of moderate size, rounded, pigment dark red. Antennæ slender and elongated; the superior ones equalling in length $^2/_3$ of the body, 1st joint of the peduncle rather elongated, nearly as long as the cephalon and the 1st segment of mesosome combined, and exceeding that of the 2 succeeding joints taken together, flagellum extremely slender, about twice as long as the peduncle, and composed of about 24 articulations. Inferior antennæ considerably shorter than the superior, the 2 outer joints of the peduncle about equal-sized, flagellum scarcely half the length of the peduncle. Anterior gnathopoda rather slender, meral joint forming inferiorly a broadly rounded setiferous lobe, carpus very elongated, and densely setous inferiorly, propodos scarcely more than half as long and rather narrow, palm distinctly defined and nearly transverse. Posterior gnathopoda very largely developed, especially in the male, meral joint, as in *M Alderi*, continued inside to a triangular ascending lamella, somewhat overlapping the upper edge of the carpus, propodos much elongated, occupying nearly half the length of the leg, and gradually widening distally, palmar edge angularly produced in the middle, with its upper half minutely crenulated, lower corner produced in front to a thumb-like projection defined from the palm by a deep and narrow incision. Same legs in male much more powerfully developed than in female, with the propodos more strongly expanded distally, and the thumb-like projection coarser and more produced. Pereiopoda moderately strong, 1st pair somewhat more slender than the 2nd, and having th basal joint rather broad and laminar; last pair with the basal joint comparatively short, scarcely attaining half the length of the remaining part of the leg, and of rounded oval form, meral joint moderately broad, and produced beyond the middle of the carpal one, dactylus in this and the 3 preceding pairs very strong and minutely serrulated on the inner edge. Last pair of uropoda with the basal joint but little longer than the succeeding joint, and armed with a single denticle affixed to a nodiform projection at the end of the outer edge, terminal joint comparatively short. Telson rather broad, triangular oval, with 2 pairs of small dorsal denticles, outer part tapering to an obtuse point. Body whitish pellucid, with a more or less distinct yellowish tinge, each segment having near its posterior edge a narrow orange-coloured band; ova in the marsupial pouch very numerous and of a bright bluish colour. Length of adult female 8 mm., that of male somewhat more.

Remarks. — This is a very distinct and easily recognizable species, especially highly characterised by the shape of the posterior gnathopoda, the peculiar thumb-like projection of which has, indeed, given rise to the specific name proposed for this form by its detector, Mr. Sp. Bate.

Occurrence. — I have met with this form rather abundantly in a single locality of the Norwegian coast, viz., Bejan, at the entrance of the Trondhjemsfjord. It occurred here in a depth of 30 to 50 fathoms among Hydroids, especially *Hydrallmannia falcata*, to the stem of which the specimens were found clinging. Mr. Schneider has, moreover, collected it rather plentifully in the neighbourhood of Tromsø. Finally, there are some specimens in the Stockholm Museum, collected outside the west coast of Norway.

Distribution. — British Isles (Sp. Bate), Shetland Isles (Norman), Greenland (Hansen), the Murman Coast (Jarzinsky).

25. **Metopa robusta,** n. sp.

(Pl. 96, fig. 1).

Body short and stout, with very firm integuments. Cephalon scarcely twice as long as the 1st segment of mesosome, lateral corners distinctly angular at the tip. Coxal plates rather large; 2nd pair obliquely curved in front; 3rd pair about twice as deep as the corresponding segment; 4th pair nearly twice as large as the 2 preceding pairs combined, and much broader than they are deep, distal edge rather deeply sinuated beyond the middle, posterior extremity broadly rounded off. Last pair of epimeral plates of metasome somewhat produced at the lateral corners. Eyes of moderate size, rounded, pigment bright red. Antennæ rather slender, the superior ones exceeding half the length of the body, 1st joint of the peduncle longer than the cephalon, and about equalling the length of the 2 succeeding joints combined, flagellum half as long again as the peduncle, and composed of about 14 articulations. Inferior antennæ scarcely shorter than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum exceeding half the length of the peduncle. Anterior gnathopoda of somewhat unusual form, basal joint rather broad and lamellar, meral joint forming inferiorly a broadly — rounded setiferous lobe, carpus very narrow and elongated, somewhat tapering distally, and having a single row of simple bristles along the inferior edge, propodos about half the length of the carpus, and still narrower, nearly linear, and without any distinctly-defined palm, dactylus very short, and finely ciliated on the inner edge. Posterior gnathopoda extremely strong and powerful, meral joint with a similar ascending lamella inside as in *M. pollexiana*, propodos very large and broad, nearly quadrate in form, though gradually expanded distally, palm somewhat oblique, and defined below by a rather large acuminate projection, its edge slightly convex and coarsely serrated in its anterior part. First pair of pereiopoda rather slender, the succeeding pairs very powerfully developed, with the meral joint greatly produced at the end, and the dactylus strong and minutely serrated on the inner edge; last pair with the basal joint very broad, and rounded quadrangular in form, meral process exceedingly large and curved, reaching even considerably beyond the carpal joint. Last pair of uropoda comparatively short, basal joint but little longer than the succeeding joint, and armed with a single denticle only, terminal joint short. Telson nearly twice as long as it is broad, and armed with 2 pairs of strong dorsal denticles, tip obtusely pointed. Body whitish pellucid, with a few scattered orange-coloured patches. Length of adult female 6 mm.

Remarks. — I at first believed this form to be the *M. clypeata* of Kröyer, owing to the somewhat similar structure of the gnathopoda. Having however, recently, through the kindness of Dr. Hansen, had an opportunity of examining the type specimens of Kröyer's species, I find both forms to be evidently distinct. The present species is easily distinguished from the said arctic form, by the antennæ being equal-sized, whereas in *M. clypeata* the superior ones are much the larger, and by the very different form of the 4th pair of coxal plates, as also by the much greater length of the meral process of the posterior pairs of pereiopoda.

Occurrence. — I have met with this form in 2 different places off the

Norwegian coast, viz., at Bejan in the outer part of the Trondhjemsfjord, and at Hammerfest, Finmark. It occurred in both places rather sparingly in a depth of 30 to 50 fathoms, among Hydroids. Moreover I found a few specimens of this form among some Stenothoidæ collected by Mr. Schneider in the neighbourhood of Tromsø, and kindly sent to me for examination.

26. **Metopa palmata,** n. sp.

(Pl. 96, fig. 2).

Form of body as in the last species. Cephalon about twice as long as the 1st segment of mesosome, lateral corners subangular at the tip. Coxal plates rather large; 2nd pair somewhat broader than in *M. robusta*, and more obliquely rounded in front; 3rd pair fully twice as deep as the corresponding segment; 4th pair larger than the 2 preceding pairs combined, and somewhat broader than they are deep, distal edge forming a perfectly even curve. Last pair of epimeral plates of metasome somewhat less produced at the lateral corners than in *M. robusta*. Eyes rather large, rounded. Antennæ much shorter than in the said species, the superior ones scarcely exceeding in length a third part of the body, 1st joint of the peduncle about the length of the cephalon, and much longer than the 2 succeeding joints combined, flagellum but little longer than the peduncle, and composed of about 12 articulations. Inferior antennæ about the length of the superior, last joint of the peduncle somewhat longer than the penultimate one, flagellum exceeding half the length of the peduncle. Anterior gnathopoda extremely slender, basal joint not at all dilated, meral joint unusually elongated, and produced at the end inferiorly to a narrow triangular projection, carpus much elongated and linear in form, propodos still narrower and somewhat shorter, without any palmar edge, dactylus short, scale-like, and provided on the inner edge with a dense series of curved setæ. Posterior gnathopoda rather powerful, meral joint simple, without any ascending lamella inside, propodos very large, oblong quadrangular in form, palm transverse, and defined below by a broad setous lobe slightly emarginated at the tip, its edge somewhat concave and obscurely crenulated, dactylus short and broad at the base, terminating with a small hook. Pereiopoda somewhat less strong than in the last-described species; last pair with the basal joint rounded oval, meral joint rather broad and produced beyond the carpal one. Last pair of uropoda with the basal joint nearly as long as the other 2 combined, and armed with 3 denticles. Telson fully twice as long as it is broad, and armed with 2 or 3 pairs of strong dorsal denticles, tip obtusely pointed. Colour in the living state of the animal not yet stated. Length of the specimen examined 5 mm.

Remarks. — The present new species is very markedly distinguished from any of the other known forms, by the rather deviating structure of both pairs of gnathopoda. The only specimen examined showed itself, by dissection, to be a male, probably not yet sexually developed.

Occurrence. — The above described specimen was found among some Stenothoidæ collected by me, some years ago, at Hammerfest, Finmark.

27. **Metopa longimana,** Boeck.

(Pl. 97, fig. 1).

Metopa longimana, Boeck, Crust. amph. bor. & arctica p. 64.

Body rather strongly built, with firm integuments and very large coxal plates. Cephalon not quite twice as long as the 1st segment of mesosome, lateral corners somewhat projecting, and distinctly angular at the tip. Second pair of coxal plates somewhat expanded in their outer part, anterior edge abruptly curved in the middle; 3rd pair more than twice as deep as the corresponding segment; 4th pair of quite unusual size, and nearly completely covering the 3 succeeding pairs, obliquely triangular in form, much broader than they are deep, distal edge nearly straight, posterior extremity bluntly rounded. Last pair of epimeral plates of metasome not much produced at the lateral corners, which however are distinctly angular at the tip. Eyes of moderate size, rounded. Antennæ in female nearly equal-sized and somewhat exceeding in length $^1/_3$ of the body, in male somewhat unequal, the inferior ones being the larger. First joint of the superior ones longer than the cephalon, but somewhat shorter than the 2 succeeding joints combined, flagellum not attaining the length of the peduncle, and composed of about 8 articulations. Inferior antennæ with the last joint of the peduncle much shorter than the penultimate one, flagellum about the length of the latter. Anterior gnathopoda rather feeble, but of quite normal appearance, meral joint produced at the end inferiorly to a setiferous projection, propodos shorter than the carpus, and scarcely dilated in the middle. Posterior gnathopoda in female moderately strong, propodos rather elongated and gradually expanded distally, palm somewhat oblique, and defined below by a rather projecting dentiform process, its edge nearly straight and slightly serrated, dactylus comparatively short and strong. Same legs in male considerably larger than in female, propodos still more elongated, palmar edge bisinuated inferiorly. Pereiopoda successively diminishing in length posteriorly, 1st pair very elongated and nearly naked, basal joint of penultimate pair not at all expanded, that of last pair but very little so, and of equal breadth throughout, meral joint in both pairs somewhat produced at the posterior corner. Last pair of uropoda rather strong, basal joint but little longer than the 2nd, and armed with 2 strong denticles. Telson oblong oval, about twice as long as it is broad, and armed with 2 pairs of dorsal denticles, tip obtusely pointed. Colour in the living state of the animal not yet stated. Length of adult female scarcely exceeding 3 mm, that of male about the same.

Remarks. — As pointed out by Dr. Hansen, Boeck confounded, under the above name, 2 distinct species. Only the male specimen delineated on plate XVII, fig. 6, in his great work, belongs to the present species, whereas the female specimen represented in fig. 5 on the same plate must be referred to the succeeding species, for which Dr. Hansen has proposed the name of *M. neglecta*. Perhaps also the specific name *longimana,* proposed by Boeck. should properly be changed, since the same appellation has been applied by Sp. Bate at an earlier date to another form from the coast of Piedmont (Montagua longimana). Though somewhat reminding of *M. pollexiana* in the elongated form of the propodos of the posterior gnathopoda, the present species is very distinct from any of those described in the preceding pages, belonging, as it does, together with the 2 succeeding species to a quite particular section of the genus Metopa, which perhaps, on account of the poor development of the basal joint of the 2 posterior pairs of pereiopoda, should more properly be regarded as a distinct genus, for which the name *Metopella* would be an appropriate one.

Occurrence. — I have not myself met with this form, but Boeck states ts occurrence in the Christianiafjord and at Haugesund. The figures here given are from Greenlandic specimens kindly sent me by Dr. Hansen.

Distribution. — Greenland (Hansen).

28. **Metopa neglecta**, Hansen.

(Pl. 97, fig. 2).

Metopa neglecta, Hansen, Malacostraca marina Grønlandiæ occidentalis, p. 96, Pl. III, fig. 9.

Syn. Metopa longimana, Boeck (part).

Body much less strongly built than in *M. longimana*, and rather compressed, with thin and pellucid integuments. Cephalon rather short, with the lateral corners less produced and nearly rectangular. Coxal plates rather large, 2nd pair scarcely expanded distally, anterior and inferior edges forming together a perfectly even curve; 3rd pair about twice as deep as the corresponding segment; 4th pair comparatively smaller and less broad than in *M. longimana*, though considerably larger than the 2 preceding pairs combined, distal edge very slightly curved, posterior extremity bluntly truncated. Last pair of epimeral plates of metasome somewhat more produced at the lateral corners than in the said species. Eyes rather small, rounded. Antennæ nearly as in *M. longimana,* but comparatively more slender. Anterior gnathopoda with the meral joint less produced, propodos scarcely shorter than the carpus. Posterior gnathopoda in female rather feeble, propodos elongated and narrow, though gradually widening somewhat distally, palm rather oblique and defined below by a small dentiform projection, in front of which there are 2 rather elongated spinules, palmar edge slightly curved and quite smooth, having only a double series of small hairs, dactylus slender and elongated. Pereiopoda extremely slender, basal joint of penultimate pair quite linear, that of last pair laminarly expanded in its upper part only; meral joint in all pairs but very little produced. Last pair of uropoda less strong than in *M. longimana,* basal joint considerably longer than the succeeding one, and armed with 2 small denticles. Telson very narrow, considerably more than twice as long as it is broad, and armed with 2 pairs of dorsal denticles, tip bluntly pointed. Colour in the living state of the animal not yet stated. Length of adult female about 3 mm.

Remarks. — As above stated, Boeck confounded this species with his *M. longimana.* Dr. Hansen was the first to point out its distinctness, and has given good detailed figures of both. Though nearly allied to *M. longimana,* it is, on closer inspection, easily distinguishable by the body being far less robust in structure, by the somewhat different form of the gnathopoda, by the slenderness of the pereiopoda, and especially by the peculiar form of the basal joint of the last pair. According to Dr. Hansen, the male is far less different from the female than is the case with M. longimana.

Occurrence. — I have never myself met with this form, but there is a single badly-preserved specimen in our Museum, collected by Boeck at Haugesund, west coast of Norway. Also the figures of this form given here are from Greenlandic specimens.

Distribution. — Greenland (Hansen).

29. **Metopa nasuta,** Boeck.

(Pl. 98, fig. 1).

Metopa nasuta, Boeck, Crust. amph. bor. & arct- p. 64.

Body very short and compact, with firm calcareous integuments. Cephalon about twice as long as the 1st segment of mesosome, lateral corners transversely truncated at the tip. Fourth segment of mesosome much larger than any of the others, and exhibiting a rounded dorsal carina; 1st segment of urosome likewise carinated dorsally, the carina terminating in a curved corner overlapping the succeeding segment. First pair of coxal plates, as also the 3 posterior ones, extremely small. The other 3 pairs, on the other hand, very large and deep; 2nd pair rather narrow in proportion to its length, anterior and inferior edges forming quite an even curve, posterior corner exhibiting a small dentiform projection; 3rd pair fully twice as deep as the corresponding segment; 4th pair much larger than the 2 preceding pairs combined and subtriangular in form, distal edge nearly straight, posterior extremity obtusely rounded. Last pair of epimeral plates of metasome somewhat produced at the lateral corners, which are distinctly angular. Eyes very small, rounded. Antennæ comparatively very short; the superior ones but little exceeding in length 1/4 of the body, 1st joiut of the peduncle very large and thick, longer than the 2 succeeding joints combined, and produced at the end anteriorly to a large hooded projection quite overlapping the 2nd joint, flagellum somewhat longer than the peduncle, and composed of about 8 articulations. Inferior antennæ a little shorter than the superior, and much more slender, the last 2 joints of the peduncle nearly equal-sized, flagellum about the length of the peduncle. Anterior gnathopoda of the usual feeble structure, propodos fully as long as the carpus, and nearly linear in form. Posterior gnathopoda of moderate size, propodos about the length of the 3 preceding joints combined, and oblong triangular in form, gradually widening distally, palm rather oblique, though somewhat shorter than the hind margin, from which it is defined by a distinct dentiform projection, its edge coarsely serrated and nearly straight, bearing the 2 usual spinules in front of the dentiform projection. Pereiopoda extremely slender and elongated, and but sparingly setiferous, the 3 posterior pairs somewhat diminishing in length, but otherwise of quite similar structure, the basal joint in all being very narrow and linear in form. Last pair of uropoda with the basal joint shorter than the other 2 combined, and armed with a single denticle only. Telson very narrow, linguiform, considerably more than twice as long as it is broad, and quite unarmed. Colour in the living state of the animal not yet stated. Length of adult female scarcely attaining 3 mm.

Remarks. — This pretty little species is at once recognized from any of the other known northern forms by the peculiar hooded prolongation of the 1st joint of the superior antennæ, which at first sight appears as a beak projecting in front of the cephalon; a fact which indeed gave rise to the specific name, *nasuta*, proposed by Boeck. Otherwise it is very nearly allied to a Greenlandic species recently described by Dr. Hansen as *M. carinata*, though evidently being specifically distinct. It is also closely allied to a form described by the Rev. Mr. Stebbing from the Kerguelen Islands under the name of *M. nasutigenes*, in which species the basal joint of the superior antennæ forms a hooded projection similar to that in the Norwegian species.

Occurrence. — I have met with this form in 3 different places on the west coast of Norway, viz. at Kopervik, in the Hardangerfjord, and at Christiansund. It occurred in all 3 places rather sparingly in depths varying from 50 to 100 fathoms. Out of Norway, it has not yet been recorded.

Gen. 4. **Cressa,** Boeck, 1870.

Syn; Danaia, Sp. Bate (not M. Edw. & Haime).

Body comparatively short and stout, with deep coxal plates, the 1st pair of which, however, as in the other Stenothoidæ, are quite rudimentary; 2nd and 3rd pairs quadrangular in form, with the infero-posteal corners more or less strongly dentate; 4th pair smaller than in the other Stenothoidæ, and deeply emarginated in their upper part to receive the rather large 5th pair. Antennæ very unequal, the superior ones being much the longer, and very slender. Anterior lip distinctly bilobed; posterior lip with the inner lobes coalesced. Mandibles rather strong, molar expansion very slight, cutting edge about as in *Stenothoe*, palp slender and elongated, distinctly 3-articulate, with the last joint well-developed. First pair of maxillæ having the palp uniarticulate; 2nd pair with the inner lobe very small. Maxillipeds of moderate size, basal lobes not coalesced, masticatory lobes very small, but distinct, palp elongated, pediform. Anterior gnathopoda slender and feeble in structure, not subcheliform. Posterior gnathopoda somewhat stronger, and distinctly subcheliform, propodos considerably dilated distally, with the palm well defined and armed with a double row of strong spines. Pereiopoda slender and elongated, basal joint of all the 3 posterior pairs laminarly expanded. The 3 anterior pairs of uropoda biramous, with the rami unequal in length and armed near the tip with 2 juxtaposed spinules; last pair uniramous. Telson not defined from the last segment of urosome, and terminating in a sharp point, to each side of which there is a short dentiform projection.

Remarks. — This genus is chiefly distinguished from the other genera belonging to the family Stenothoidæ by the large size of the mandibular palp, by the deviating form of the 4th pair of coxal plates, and by the basal joint of all the 3 posterior pairs of pereiopoda being laminarly expanded, finally by the telson not being defined from the last segment of urosome. The generic name *Danaia*, proposed by Sp. Bate, having been already appropriated in Zoology, that of Boeck must be retained for the genus. It comprises as yet but 3 species, 2 of which will be described in the sequel, the 3rd being the *C. abyssicola* described by the author from the Norwegian North Atlantic Expedition.

30. **Cressa dubia** (Sp. Bate).

(Pl. 98, fig. 2, Pl. 99, fig. 1).

Danaia dubia, Sp Bate, Catal. Amph. Brit. Mus. p. 59, Pl. X, fig. 1.

Syn. Cressa Schødtei, Boeck.

Body rather high and compressed, with the last 2 segments of mesosome and those of metasome each produced at the end dorsally to a recurved dentiform projection. Cephalon about twice the length of the 1st segment of mesosome, and somewhat produced in front between the bases of the superior antennæ, lateral corners jutting out as an amminate lobe having inferiorly a pointed, anteriorly-curving, dentiform projection. Second and 3rd pairs of coxal plates having each at the infero-posteal corner 4 to 5 anteriorly curving coarse serrations; 4th pair nearly twice as deep as the corresponding segment, distal edge transversely truncated, posterior emargination defined below by a sharp corner. Last pair of epimeral plates of metasome considerably produced at the lateral corners. Eyes rather large, oval in form, pigment dark red. Superior antennæ in female about the length of the cephalon and mesosome combined, 1st joint of the peduncle rather elongated, somewhat exceeding in length the 2nd, both produced at the end posteriorly to a triangular scale-like projection, flagellum extremely slender, more than twice as long as the peduncle, and composed of about 20 articulations. Same antennæ in male nearly as long as the body, and having the joints of the flagellum clothed with long sensitive setæ. Inferior antennæ of same structure in the 2 sexes, scarcely more than half as long as the superior and much feebler, last joint of the peduncle shorter than the penultimate one, flagellum somewhat exceeding the peduncle in length. Anterior gnathopoda with the propodos a little shorter than the carpus, and nearly linear in form. Posterior gnathopoda scarcely longer than the anterior, but considerably more powerful in structure, propodos about the length of the 3 preceding joints combined, and subtriangular in form, its proximal part somewhat constricted, distal part greatly expanded, palm nearly transverse, and defined below by a short dentiform projection, its edge slightly curved, and having on each side 6—7 spinules. Pereiopoda very slender, and nearly of equal length, basal joint of the 3 posterior pairs moderately expanded, oblong oval in form, and obliquely truncated at the infero-posteal corner. Last pair of uropoda rather slender and elongated, basal joint longer than the other 2 combined, thickened at the base, and without any denticles, but produced at the end inferiorly to a sharp triangular projection, 2nd joint twice as long as the terminal one, and armed at the end with 2 juxtaposed small denticles. End of telson reaching about to the middle of the basal joint of the last pair of uropoda. Colour more or less dark brownish from numerous pigmentary spots forming irregular shadows descending down the coxal plates, peduncle of the superior antennæ chestnut-brown. Length of adult female somewhat exceeding 3 mm; that of male considerably less.

Remarks. — There cannot in my opinion be any doubt about the identity of Boeck's *Cressa Schødtei* with *Danaia dubia* of Sp Bate, especially after the redescription of the latter form by the Rev. Mr. Stebbing. The figure given by Sp. Bate is far from being good, and the description contains several apparent errors, probably arising from the bad preservation of the solitary specimen examined, and thus it may easily be explained that Boeck could not recognize this form. From the 2 other species, the present one is readily known by the recurved dorsal projections, which give the posterior part of the back a peculiar, ragged appearance.

Occurrence. — I have met with this form in several places, both off the west and south coast of Norway, as also in the Trondhjemsfjord, at depths varying from 20 to 80 fathoms. Boeck records it only from Haugesund.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux).

31. **Cressa minuta**, Boeck.

(Pl. 99, fig. 2).

Cressa minuta, Boeck, Crust. amph. bor. & arct, p. 66.

Body comparatively more slender than in the type species, back quite smooth throughout. Cephalon with the lateral corners rather produced and terminating in an acute point, inferior edges smooth, without any trace of a dentiform projection. Second and 3rd pairs of coxal plates each with only a simple anteriorly-curved tooth at the infero-posteal corner; 4th pair nearly twice as deep as the corresponding segment, and narrowly truncated at the tip, posterior projection less acute than in the type species. Last pair of epimeral plates of metasome somewhat less produced at the lateral corners. Eyes comparatively small and of rounded form. Antennæ nearly as in *C. dubia*, but with the flagella composed of a smaller number of articulations, that of the superior ones being only 12-articulate. Anterior gnathopoda with the propodos comparatively small, scarcely more than half as long as the carpus. Posterior gnathopoda very like those in *C. dubia*, but with the propodos a little more elongated, and having only 4—5 spinules on each side of the palmar edge. Basal joint of the 3 posterior pairs of pereiopoda rather expanded and of regular oval form, infero-posteal corner evenly rounded. Uropoda and telson about as in *C. dubia.* Colour in the living state of the animal not yet stated. Length of adult female about 3 mm.

Remarks. — The present species, established by Boeck, is nearly allied to *C. dubia*, though, on a closer inspection, easily distinguishable by the absolute want of dorsal projections, as also by the inferior edges of the cephalon being quite smooth. The comparatively smaller and rounded eyes, and the somewhat different form of the basal joint of the 3 posterior pairs of pereiepoda, will likewise serve to distinguish this species from the type one.

Occurrence. — I have only seen a few specimens of this form, which were collected by me in 3 different places, viz., at Risør, south coast of Norway, at Sunde and Bekkervig, both belonging to the west coast. Boeck found it at Haugesund. Out of Norway, it has not yet been recorded.

Fam. 9. Leucothoidæ.

Body slender, with not very deep coxal plates, the 1st of which are well developed. Cephalon comparatively small, and but little produced in front; metasome of normal appearance. Antennæ not very elongated, and of similar structure in the 2 sexes, the superior ones without any secondary appendage. Epistome produced in front. Anterior lip lamellar, bilobed; posterior lip well developed, without any inner lobes. Mandibles strong, cutting edge coarsely dentated, molar expansion wanting, palp distinct, though not very large. Maxillæ of normal appearance. Maxillipeds without any distinct masticatory lobes, palp very large and pediform. Gnathopoda powerfully developed, and rather complex in structure, the anterior ones having the carpus produced so as to form with the propodos a complete chela, the posterior ones subcheliform, and larger than the anterior. Pereiopoda slender, basal joint of the 3 posterior pairs laminarly expanded. Branchial lamellæ simple and rather narrow; incubatory lamellæ well developed and fringed with slender setæ. Last pair of uropoda biramous. Telson entire.

Remarks. — The family is here taken in a much more restricted sense than it is by Boeck. The latter author comprised in it, besides the genus *Leucothoë*, the 3 genera *Eusirus, Tritropis* and *Lilljeborgia.* But, as recently pointed out by the Rev. Mr. Stebbing, these 3 genera are in fact rather different from Leucothoe, and more properly referable to a particular family, *Eusiridæ.* In his valuable work on the Challenger Amphipoda Mr. Stebbing has referred to the family Leucothoidæ, only one genus in addition to the type one, viz, that named by Costa as *Seba.* In my opinion, however, this genus cannot properly be associated with the genus Leucothoë, differing as it does in many very essential points, thus in the presence of an accessory appendage to the superior antennæ, and of distinct masticatory lobes to the maxillipeds. Moreover the gnathopoda in this genus, though showing a remote resemblance to those in Leucothoë in that they are cheliform, are in reality constructed upon a totally different type. Therefore, in my opinion, only the genus Leucothoë ought at present to be referred to the family under question. It is placed here next to the Stenothoidæ, as it shows, at least as regards the structure of the maxillipeds, some apparent resemblance to this family, though otherwise very different.

Gen. Leucothoë, Leach, 181.

Syn. Lycesta, Savigny.

Body glabrous and not very compressed. Cephalon with a very small and obtuse rostral projection, from which a thin vertical lamella descends between the bases of the superior antennæ. The 4 anterior pairs of coxal plates but little different in size, and rather broad in proportion to their depth; the 3 posterior pairs much smaller. Antennæ rather slender, with elongated peduncles and short flagella. Epistome forming in front a conically pointed projection. Anterior lip with the right lobe much larger than the left; posterior lip with the lateral corners narrowly rounded. Mandibles very strong, cutting edge of the left one provided with a distinct secondary lamella dentated on the edge, that of the right with no such lamella, palp scarcely longer than the mandible and rather narrow, its terminal joint comparatively small and simple. First pair of maxillæ with the palp distinctly biarticulate, last joint not expanded distally, basal lobe very small, with only a single bristle; 2nd pair with the inner lobe much broader than the outer. Maxillipeds with the basal lobes short and broad, partly coalesced; 1st joint of the palp large and laminar, inner edge sharpened and forming at the end a slight lamellar expansion as a rudiment of a masticatory lobe, terminal joint long and claw-like. Anterior gnathopoda rather slender, carpus greatly swollen in its proximal part to receive the powerful muscles moving the propodos, and produced at the end inferiorly to a claw-like process, which forms the thumb of the chela, propodos narrow and very movably articulated to the carpus, dactylus small and curved. Posterior gnathopoda very powerful, especially in the male, carpus short, but produced at the end inferiorly to a setous lobe, stretching along the hind margin of the propodos, the latter very large and dilated in the middle, palm oblique, dactylus strong and curved. The 3 posterior pairs of pereiopoda subequal both as to size and structure. Second pair of uropoda much shorter than the other 2; last pair with the basal part elongated, rami lanceolate and minutely spinulose. Telson triangular, unarmed.

Remarks. — This genus was established as early as 1813 by Leach to include the rather divergent form first described and delineated by Abildgaard as *Gammarus spinicarpus*. Besides this form, M. Edwards established another species undoubtedly belonging to this genus, viz., *L. furina*, and recently the Rev. Mr. Stebbing has described 3 new species from the Challenger Expedition. A 6th species was moreover established by Norman as *L. imparicornis*, which latter form will be described in the sequel under the older name *L. Lilljeborgii* proposed by Boeck.

1. **Leucothoë spinicarpa**[1] (Abildgaard).

(Pl. 100, Pl. 101, fig. 1).

Gammarus spinicarpus, Abildgaard, Zool. Danica, III, p. 66, Pl. CXIX, fig. 1—4, 17.

Syn.: Cancer (Gammarus) articulosus, Mont.
» Leucothoë denticulata, Costa.

Body rather slender, nearly cylindric, with broadly rounded back. Cephalon scarcely longer than the 1st segment of mesosome, frontal projection very short, and obtuse at the tip, descending lamella forming inferiorly a sharp corner, lateral edges of the cephalon evenly rounded off. The 4 anterior pairs of coxal plates but little deeper than the body, 1st pair somewhat expanded in their outer part, anterior corner transversely truncated; 2nd pair obliquely quadrangular in shape, and somewhat broader than they are deep; 3rd pair a little narrower, and obliquely truncated at the tip; 4th pair the largest, and having the anterior corner blunted, the posterior projection obtusely pointed. Last pair of epimeral plates of metasome but little produced at the lateral corners, and nearly rectangular, posterior edge very slightly curved. Eyes of moderate size, oval in form, pigment bright red. Superior antennæ scarcely attaining $^1/_3$ of the length of the body, 1st joint of the peduncle rather elongated, exceeding the length of the cephalon, and produced at the end posteriorly to an acute lappet; 2nd joint of about same length, but somewhat narrower, 3rd joint very small, flagellum about the length of the last 2 joints of the peduncle combined, and composed of about 16 articulations. Inferior antennæ but little shorter than the superior, but more slender, last joint of the peduncle much shorter than the penultimate one, flagellum very small, not even attaining the length of the last joint of the peduncle. Anterior gnathopoda rather slender, proximal part of the carpus globularly inflated, carpal process very narrow, spiniform and quite smooth, terminating in a slightly upturned acuminate point, propodos finely serrated along the inferior edge and having besides a row of small curved bristles, dactylus about half its length and very slender, curved downwards. Posterior gnathopoda with the carpal process densely hairy, and somewhat laminar at the tip, terminal edge minutely serrulated, propodos very large and massive, oval in form, its tip jutting out above the insertion of the dactylus as a triangularly pointed projection setous at the edge, palm somewhat curved, and defined below by a very slight obtuse angle, its edge minutely serrulated throughout; propodos of male still larger than in female, and more dilated in its proximal part to receive the powerful muscles moving the dactylus. Pereiopoda nearly equal in size, and provided with very short marginal spinules, dactylus in all very small, basal joint of last pair oval, posterior edge serrated, and strongly curved in the middle. Last pair of uropoda with the rami much shorter than the basal part. Telson very elongated, about 3 times as long as it is broad at the base, and gradually tapering to an acuminate point. Body of a pale flesh-colour, with slight transverse bands of a somewhat darker hue, ova in the marsupial pouch of a fine grass-green colour. Length of adult female reaching 14mm, that of male 15mm.

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[1] In the plates, by an error, the specific name of Montagu, *articulosa*, has been inserted.

Remarks. — By the peculiar structure of the gnathopoda this form is so highly characterised as to be at once recognized from most other Amphipoda. Also from the following species it may readily be distinguished, by several well-marked characteristics. Of the exotic species the *L. Miersi* of Stebbing is that which comes nearest to the present form.

Occurrence. — Off the south and west coasts of Norway this species is far from being rare, occurring even in some places, as in the Trondhjemsfjord, in great abundance. It is found in depths varying from 30 to 150 fathoms, now free, now semiparasitic in the branchial cavity of Ascidiæ.

Distribution. — British Isles (Montagu and others), Kattegat (Meinert), coast of France (Chevreux), Mediterranean (Costa), Azores (Barrois), Greenland (Hansen).

2. **Leucothoë Lilljeborgii**, Boeck.

(Pl. 101, fig. 2).

Leucothoë Lilljeborgii, Boeck, Forhandl. Skand. Naturf. 8de Møde 1860.
Syn: Leucothoë articulosa, Lilljeb. (non Mont).
» Leucothoë furina, Norman & G. O Sars (non Savigny).
» Leucothoë imparicornis, Norman

Body even somewhat more slender than in the type species, and less tumid. Cephalon nearly twice as long as the 1st segment of mesosome, frontal projection somewhat more produced than in *L. spinicarpa*, lateral corners evenly rounded. First pair of coxal plates narrowly rounded at the anterior corners, 4th pair pentagonal in form, anterior corners produced to an acute point. Last pair of epimeral plates of metasome forming at the lateral corners a strong, recurved, acuminate projection defined above by a deep sinus, posterior edge strongly arcuate. Eyes rounded triangular in form, pigment dark brownish. Antennæ somewhat unequal in length, especially in the male, the superior ones being much the larger, though scarcely exceeding in length $^1/_3$ of the body, 1st joint of the peduncle about the length of the 2nd, and without any projecting lobe at the tip, flagellum half as long as the peduncle and composed of 9 articulations only. Inferior antennæ very slender, and (in male) scarcely longer than the peduncle of the superior ones, last peduncular joint but little shorter than the penultimate one, flagellum about the length of the former. Anterior gnathopoda comparatively less slender than in the type species, basal jont somewhat dilated, and densely setous on both edges, proximal part of the carpus considerably dilated and oval in form, carpal process less slender than in *L. spinicarpa,* and finely serrated on the upper edge, tip slightly upturned, propodos very narrow, and having the inferior edge smooth, dactylus extremely small, nail-like. Posterior gnathopoda with the carpal process rather narrow, and provided inferiorly with tufts of fine bristles, tip scarcely expanded and tridentate, propodos subfusiform in outline, outer part considerably tapering, palm very oblique, and defined below by a slight angle, its edge quite smooth and nearly straight, dactylus less strong than in the type species, and abruptly bent at the base. Pereiopoda extremely slender, with the propodal joint, especially of the 2 anterior pairs, very much elongated, dactylus rather slender, basal joint of last pair regularly oval, posterior edge finely serrulate and evenly curved. Last pair of uropoda with the rami nearly as long as the basal part. Telson rather short, triangular oval, but little longer than it is broad at the base, tip obtusely pointed. Body pellucid with a faint yellowish tinge, and ornamented with irregular orange and pinkish specks, partly forming across the back interrupted transversal bands. Length of adult female scarcely attaining 6 mm.

Remarks. — This form was first found by Prof. Lilljeborg at Kullaberg, Bohuslän, but described by him as *L. articulosa* Mont. In 1860, at the 8th meeting of the Scandinavian naturalists, Boeck called attention to some striking differences in the form described by Prof. Lilljeborg, from the type species as regards the structure of the anterior gnathopoda, and the shape of the 4th pair of coxal plates, and proposed to establish the latter as a distinct species under the name af *L. Lilljeborgii.* The Rev. Mr. Norman found the same form at the Shetland Isles, but referred it to *L. furina* Savigny, and I recorded it myself under this name in my »Oversigt». In 1889, however, Mr. Norman recognized the specific difference of this form from *L. furina,* and described it as a new species under the name of *L. imparicornis,* giving at the same time some detail figures, which have enabled me to identify it with the form here treated of. In the plate the name proposed by Norman has been inserted, but I now consider it more advisable to retain for the species the much older name proposed by Boeck. Though rather nearly allied to the type species, this form is easily distinguishable both by its much smaller size and by several well-marked structural details; thus by the form of the 4th pair of coxal plates and of the last pair of epimeral plates of metasome, by the structure of the gnathopoda and of the telson, and finally by the rather different coloration of the body.

Occurrence. — The only place, where I have met with this species, is at Kopervik, west coast of Norway. It occurred here rather sparingly in a depth of 40—60 fathoms.

Distribution. — Kullaberg (Lilljeborg), Shetland Isles (Norman), coast of France (Chevreux, as *L. furina*).

Fam. 10. Œdiceridæ.

Body more or less tumid, with the coxal plates not very large and fringed at the distal edge with setæ. Metasome well developed, with the epimeral plates evenly rounded at the lateral corners. Urosome of normal appearance. Cephalon more or less produced in front. Eyes, when distinctly developed, contiguous, and placed at the end of the front dorsally. Antennæ more or less densely clothed with setæ, some of which are generally plumose, the superior one, as a rule, shorter than the inferior, and without any accessory appendage. Epistome not projecting in front. Anterior lip rounded, posterior lip well developed, with the inner lobes distinct. Mandibles short and stout, molar expansion more or less developed, palp large and densely setous. Maxillæ normal. Maxillipeds with the masticatory lobes well developed, though generally not very large, palp robust, with the terminal joint claw-like. Gnathopoda sometimes very strong, sometimes feeble, subcheliform, or the posterior pair sometimes chelate. The 4 anterior pairs of pereiopoda generally rather stout and densely setous, with the meral joint more or less dilated, basal joint of 3rd and 4th pair not very large, elliptical in form, and fringed with long plumose setæ; last pair very unlike the preceding pair, much elongated, and turned posteriorly, basal joint laminarly expanded, outer part minutely spinulose at the edges, terminal joint styliform. Branchial lamellæ simple and rather large; incubatory lamellæ well developed, and fringed with slender setæ. Uropoda subequal in structure, rami lanceolate. Telson small, squamiform, entire.

Remarks. — This is a well defined and rather extensive family, comprising, as it does, several genera, some of which, as the genus *Monoculodes*, is very rich in species. In some points the forms under question somewhat remind one of the *Pontoporeiidæ* and *Phoxocephalidæ,* having a similar ability for concealing themselves in the loose bottom material, and the pereiopoda, with the exception of the last pair, are constructed in accordance therewith, being generally rather stout, with the joints more or less expanded and densely setous. From both these families, however, as also from most other Amphipoda, the forms here treated of may be easily recognized by several well-marked characteristics. Thus the eyes, when distinctly developed, exhibit a very peculiar appearance, both as to place and structure, being, as a rule, put so close together as to appear as a single organ, which is situated quite dorsally at the end of the more or less projecting frontal part of the cephalon. Another easily reognizable characteristic is the great length of the last pair of pereiopoda, which, moreover, are very unlike the preceding pairs, and are constructed much upon the same type as the penultimate pair in the *Phoxocephalidæ.* In an admirable memoir inserted in the «Tromsø Museums Aarshefter» VI, Mr. Schneider has treated of the northern forms belonging to this family, giving good descriptions of most of them, as also some characteristic detail figures, chiefly referring to the form of the cephalon. He enumerates in all 27 species, and has subsequently added another new species (*Monoculodes tessellatus*). The species were referred, according to the arrangement of Boeck, to 7 different genera. In the following pages will be described no less than 12 genera represented in the fauna of Norway. Of these 6 are now for the first time established. In addition an exclusively arctic genus, *Acanthostepheia*, has been instituted by Boeck, and another genus was more recently described by the Rev. Mr. Stebbing from the Challenger Expedition under the name of *Oediceroides.*

Gen. 1. Œdiceros, Krøyer, 1842.

Body rather robust, with broadly vaulted back, and the segments sharply defined. Cephalon produced in front to a sharp rostrum curving downwards. Coxal plates comparatively broad and rounded at the edges, 4th pair rather large, bilobed, nearly as deep as the 3rd. Eyes distinct, contignous, placed above at the base of the rostrum. Superior antennæ shorter than the inferior, peduncle of both pairs rather elongated. Anterior lip evenly rounded at the tip; posterior lip with the outer lobes rather broad, and produced outside to an obtuse projection. Mandibles with the molar expansion imperfectly developed, rounded at the tip, and without the usual fluted triturating surface, palp robust and having the last joint oblong oval in form. First pair of maxillæ with the masticatory lobe comparatively narrow, basal lobe with a few plumose setæ, palp well developed, but scarcely dilated distally. Second pair of maxillæ with both lobes oval in form and nearly equal-sized. Maxillipeds with the basal lobes not very large, masticatory lobes oval, reaching about to the middle of the 2nd joint of the palp, and armed on the inner edge with a row of strong spines, on the tip and outer edge with curved plumose setæ, palp robust with large claw-like terminal joint. Gnathopoda subequal in structure, the posterior pair being only a little larger, carpus in both pairs produced at the end inferiorly to a curved setous lobe, propodos large and oval in form, with the palm very oblique. Pereiopoda, with the exception of the last pair, short and stout, densely setous, and having the dactylus lanceolate compressed. Last pair of uropoda not projecting beyond the others. Telson rounded quadrangular.

Remarks — In the restriction here adopted, this genus is chiefly characterised by the distinctly deflexed rostrum, and by the gnathopoda being quite equal in structure. In both these points it is easily distinguished from the following nearly-allied genus *Paroediceros*. It comprises as yet only 2 species, to be described in the sequel.

1. **Œdiceros saginatus**, Krøyer.

(Pl. 102).

Œdiceros saginatus, Krøyer, Nat. Tidsskr. 1 R. IV, p. 156.

Body rather inflated, especially in the ovigerous female, the mesosome being even somewhat broader than it is deep, segments of metasome slightly carinated above. Cephalon about the length of the first 2 segments of mesosome combined, rostrum abruptly deflexed so as to make the upper contour of the head geniculate in front, its tip sharply pointed and reaching nearly to the end of the basal joint of the superior antennæ, lateral corners of cephalon rectangular. Coxal plates scarcely deeper than the body; 1st pair rather small and evenly rounded at the tip; 4th pair rounded quadrangular, scarcely at all emarginated posteriorly, and having the infero-posteal corners rounded off; 5th pair rather broad, with the posterior lobe the larger. Eyes placed within a rounded prominence at the base of the rostrum, pigment dark red. Superior antennæ scarcely attaining ¹/₄ of the length of the body, and reaching somewhat beyond the peduncle of the inferior, 1st joint of the peduncle about the length of the 2nd, but much thicker, flagellum a little shorter than the peduncle, and composed of about 13 articulations. Inferior antennæ nearly ¹/₃ longer than the superior, last joint of the peduncle rather elongated, equalling in length the 2 preceding joints combined, flagellum somewhat shorter than the peduncle. Gnathopoda rather powerful, carpal process slightly curved, and somewhat dilated in the middle, its inferior edge provided with dense tufts of setæ, propodos oblong oval in form, more than twice as long as it is broad, palm much longer than the hind margin, and defined below by a small denticle, its edge slightly curved, and armed with a row of small denticles alternating with short curved setæ, dactylus long and curved. The 4 anterior pairs of pereiopoda comparatively short and stout, nearly equal in length, dactylus in all rather short. Last pair considerably exceeding half the length of the body, basal joint rounded oval, with the posterior edge slightly concave. Last pair of uropoda with the inner ramus a little longer than the outer, and armed on the inner edge with 4 spinules. Telson rounded quadrangular in form, but little longer than it is broad, tip obtusely truncated. Body whitish, with a pale orange tinge, and ornamented on the back with transverse bands of a dark brownish violet pigment, forming on the sides of the cephalon a more or less distinct reticulation. Length of adult female reaching nearly 20 mm.

Remarks. — The present form, first described by Kröyer from Greenlandic specimens, is easily recognizable by the peculiar geniculated form of the front and the rather long and acuminate deflexed rostrum. It is the type of the genus.

Occurrence. — The only place off the Norwegian coast where I have met with this form, is in the Varangerfjord, at Vadsö, east Finmark. It occurred here rather sparingly in a depth of 10—20 fathoms, sandy clay. Mr. Schneider has also found it in the Porsangerfjord and at Vardö. According to Boeck, it has moreover been taken at Tromsö by Dr. Danielssen, and so far south as Christiansund by v. Düben.

Distribution. — Arctic Ocean: Greenland (Kröyer), Iceland (Torell), Spitsbergen (Goës), the Murman coast (Jarzynski), the Siberian Polar Sea (Stuxberg).

2. **Œdiceros borealis,** Boeck.

(Pl. 103, fig. 1).

Œdiceros borealis, Boeck, Crust. amph. bor. & arct. p. 82.

Body very short and stout, and much inflated in its anterior part. Cephalon shorter than the first 2 segments of mesosome combined, its upper contour evenly curved in front, rostrum rather short, scarcely reaching beyond the middle of the basal joint of the superior antennæ, lateral corners obtusely rounded. Coxal plates comparatively larger than in the type species, 1st pair rather expanded in their outer part, distal edge oblique and biangulated; 3rd pair slightly insinuated at the tip; 4th pair somewhat deeper than they are broad, infero-posteal corners distinctly angular; 5th pair with the anterior lobe somewhat deeper than the posterior. Eyes rather small, contiguous. Superior antennæ nearly as in the type species, but with the flagellum composed of 10 articulations only. Inferior antennæ with the last joint of the peduncle scarcely longer than the penultimate one, flagellum about the length of the peduncle. Gnathopoda very strong, carpal process narrow, and but sparingly setous, propodos large and tumid, oval in form, palm shorter than the hind margin, and, as in the type species, defined below by a small denticle, dactylus comparatively short. Pereiopoda somewhat less robust than in *Œ. saginatus*, dactylus of the 3rd and 4th pairs rather elongated; basal joint of last pair rounded oval, and comparatively smaller than in the type species, posterior edge scarcely concave. Last pair of uropoda rather small, rami very narrow, the inner one armed with a single spinule only. Telson oval in form, much longer than it is broad, tip obtusely rounded. Colour in the living state of the animal not yet stated. Length of adult female scarcely exceeding 9 mm.

Remarks. — This species, established by Boeck, is easily distinguished from *Œ. saginatus* not only by its much inferior size, but also by its very short and compact form of body, by the smaller and less abruptly bent rostrum, and finally by the somewhat different shape of the gnathopoda.

Occurrence. — I have never myself met with this species, but Boeck states its occurrence off the coast of Finmark, and one specimen in our University collection is labelled in accordance therewith.

Distribution. — Greenland (Boeck and Hansen).

Gen. 2. **Parœdiceros,** G. O. Sars, n.

Syn.: Œdiceros, autorum (part).

Form of body about as in Œdiceros. Cephalon with the frontal part considerably produced, but without forming any distinct rostrum, its extremity being more or less swollen to receive the contiguous eyes. Coxal plates of moderate size, the anterior pairs quadrangular in form. Antennæ very unequal, the superior ones being comparatively very small, the inferior, on the other hand, rather elongated, with the flagellum in the adult male long and filiform. Oral parts much as in Œdiceros, saving that the mandibular palp is more slender, and the anterior lip nearly transversely truncated at the tip. Gnathopoda rather unequal in structure, the anterior ones having the basal joint more or less dilated, and the 3 succeeding joints very small, with the carpal process obsolete, propodos much elongated and somewhat expanded in its outer part, with the palmar edge obliquely curved, and densely clothed with small spinules and bristles. Posterior gnathopoda about as in Œdiceros. Pereiopoda more slender than in the latter genus, otherwise of much the same structure. Uropoda and telson likewise of a very similar appearance to those in that genus.

Remarks. — The value of this new genus may perhaps be questioned, since there is no essential difference to be found in the structure of the oral parts from that in *Œdiceros.* On the other hand, the want of a true rostrum, and especially the rather peculiar structure of the anterior gnathopoda, are characteristics, by which this genus is very markedly distinguished from Œdiceros, and, as there are several species which perfectly agree in these characteristics, the establishment of the genus may at least be regarded as very convenient. Besides the 2 Norwegian species described in the sequel, the form characterised and figured by the author from the Norwegian North Atlantic Expedition as *Œdiceros macrocheir* undoubtedly belongs to the present genus, and this is also the case with the species recently described by Dr. Hansen from Greenland as *Œdiceros curvirostris.* Finally the latter author records a form from the Kara Sea, which he only suggest refering to *Œ. microps* G. O. Sars (= Parœdiceros propinqvus Goës), but which markedly differs by the greater length of the propodos of the anterior gnathopoda, and therefore properly ought to be regarded as specifically distinct. We thus have no less than 5 species, all of which exhibit the very same essential characteristics distinguishing them from the 2 above described species belonging to the true genus Œdiceros.

3. **Parœdiceros lynceus,** (M. Sars).

(Pl. 103 fig. 2, Pl. 104, fig. 1).

Œdiceros lynceus, M. Sars, Christ. Vid. Selsk. Forh. 1858, p. 143.

Body moderately robust, with broadly-vaulted back, and sharply-defined segments, those of metasome slightly keeled dorsally. Cephalon exceeding in length the first 2 segments of mesosome combined, frontal part horizontally produced, and reaching somewhat beyond the basal joint of the superior antennæ, its tip rather tumified and vaulted above, forming only a slight angle inferiorly as a rudiment of a rostrum; lateral corners of cephalon somewhat produced, and sharply angular at the tip. Anterior pairs of coxal plates a little deeper than the body, 1st pair rather expanded in their outer part, distal edge oblique, biangular; the 3 succeeding pairs regularly quadrangular in form. Eyes rather large, placed close together at the extremity of the front, pigment yellowish red. Superior antennæ (in female) about the length of the cephalon and the 1st segment of mesosome combined, and somewhat shorter than the peduncle of the inferior ones, 1st joint of the peduncle nearly as long as the other 2 combined, flagellum but little exceeding half the length of the peduncle, and composed of about 10 articulations. Inferior antennæ nearly half as long as the body, penultimate joint of the peduncle about the length of the last one, but much thicker, and densely clothed with setæ, flagellum very slender and somewhat exceeding the peduncle in length, that of the young male still longer, and divided into a very great number of short articulations. Anterior gnathopoda about the length of the posterior, basal joint moderately dilated, propodos nearly 3 times as long as the 3 preceding joints combined, palm fully as long as the hind margin, which is somewhat sinuated behind the defining denticle. Posterior gnathopoda with the propodos oblong oval in form, palm considerably longer than the hind margin. Pereiopoda moderately slender, dactylus about the length of the propodal joint, basal joint of last pair rather broad, with the posterior edge setous. Last pair of uropoda having the rami longer than the basal part, the inner one armed with a single spinule only. Telson of moderate size, oval quadrangular in form, tip transversely truncated. Body whitish, with a dark brownish violet pigment, arranged on the back in broad transverse bands, on the sides of the cephalon in a more or less distinct reticulation. Length of adult female reaching 22 mm.

Remarks. — This form was first described by my late father, Prof. M. Sars, as an *Œdiceros*, and is the type of the present new genus. It is easily recognized from the other species, especially by the form of the frontal part of the cephalon.

Occurrence. — Along the whole coast of Finmark this species is very frequently met with, in moderate depths, from 15 to 50 fathoms. The southernmost place, where I have found it, is at Apelvær, Namdal. Off the west and south coasts of Norway, on the other hand, I have never met with it.

Distribution. — Arctic Ocean, widély distributed: Greenland (Hansen), Iceland (Torell), Spitsbergen (Norw. North Atl. Exp.), the Murman coast (Jarzynsky), the Siberian Polar Sea (Stuxberg), Labrador (Sidn. Smith).

4. **Parœdiceros propinqvus** (Goës).

(Pl. 104, fig. 2).

Œdiceros propinqvus, Goës, Crust. amph. maris Spetsberg. alluentis, p. 10, fig. 19.
Syn : Œdiceros microps, G. O Sars.

Body comparatively less strongly built than in *P. lynceus,* though rather tumid in the female. Cephalon produced anteriorly in a similar manner to that in the above-named species, the frontal part being however far less tumified, and scarcely extending to the end of the basal joint of the superior antennæ; lateral corners somewhat less produced. Coxal plates comparatively smaller than in the type species, and, in female, scarcely deeper than the body, 1st pair rather broad, and nearly transversely truncated at the tip. Eyes much smaller than in *P. lynceus,* placed close together at the tip of the front, pigment bright red. Superior antennæ in female reaching a little beyond the peduncle of the inferior, 1st peduncular joint scarcely longer than the 2nd, flagellum shorter than the peduncle, and composed of about 8 articulations; those in adult male more elongated, with the flagellum nearly twice as long as the peduncle, and composed of 11 articulations, the 7 inner ones being rather thick, and densely clothed with delicate sensory bristles. Inferior antennæ in female about twice as long as the superior, penultimate joint of the peduncle rather large and densely setous, last joint very narrow, linear, flagellum about the length of the peduncle; those of adult male extremely elongated and slender, attaining the length of the whole body, the last 2 joints of the peduncle without the usual setæ, but clothed along their anterior edges with small tufts of sensory bristles, flagellum very slender and filiform. Anterior gnathopoda about the length of the posterior, basal joint considerably dilated in the middle, nearly fusiform in outline, propodos oblong oval, about 3 times as long as it is broad, palm rather arched, and scarcely longer than the hind margin. Posterior gnathopoda nearly as in *P. lynceus.* Pereiopoda considerably more slender than in that species, with the dactylus very long and falciform; basal joint of last pair less dilated. Last pair of uropoda with the rami about the length of the basal part, very narrow, and quite unarmed. Telson comparatively somewhat smaller than in *P. lynceus*, oval quadrangular in form, tip transversely truncated. Colour light yellowish, with a faint tinge of rose, but without any pigmentary spots or ramifications. Length of adult female 11 mm, of male 10 mm.

Remarks. — This form was originally described by the author as a new species under the name of *Œdiceros microps.* I now, however, believe it to be identical with *Œdiceros propinqvus* Goës, which latter form, by Boeck and other authors, has been, in my opinion, wrongly identified with *Œ. lynceus.* Probably Goës has confounded both species, but the figure he gives of the anterior part of the body, agrees better with the present species than with *Œ. lynceus.* Though very nearly allied to the latter species, this form may be easily distinguished by its much smaller size, the shorter and less tumefied frontal part, the more slender pereiopoda, and finally by the want of pigmentary ornament.

Occurrence. — Off the coast of Finmark, this species is far from being rare. I have thus collected it in considerable numbers in the Varangerfjord, at Vadsø, in depths varying from 20 to 80 fathoms, and Mr. Schneider has found it in the neigbourhood of Tromsø. The southernmost place, where I have met with it, is at Kvalø on the Nordland coast. Out of Norway, it has not yet with certainty been recorded; for the form named by Dr. Hansen *Œdiceros microps* from the Kara Sea, I regard as a distinct species.

Gen. 3. **Monoculodes,** Stimpson, 1853.

Form of body generally more slender than in the 2 preceding genera. Cephalon more or less produced in front, and forming, as a rule, a sharp deflexed rostrum. Anterior pairs of coxal plates rounded quadrangular, and successively increasing in size to the 4th; 5th pair rather large and bilobed. Eyes contiguous, placed above at the base of the rostrum. Antennæ more or less unequal, the superior ones being, as a rule, much shorter than the inferior, flagellum of the latter in male slender and filiform. Oral parts nearly as in the 2 preceding genera, except that the molar expansion of the mandibles is well-developed and provided with a distinct fluted triturating surface. Gnathopoda comparatively less powerful, and more or less unequal in structure, the anterior ones being generally shorter and stouter than the posterior, which latter have the carpal process very narrow and stretching along the propodos. Pereiopoda, uropoda and telson nearly as in the 2 preceding genera.

Remarks. — This genus, established by Stimpson, is nearly allied to the 2 preceding ones, though materially differing in the structure of the mandibles, as also in that of the gnathopoda. It comprises numerous species, the greater number of which would seem to be restricted to the northern Oceans. In the following pages will be described no less than 12 Norwegian species, 2 of which are new to science. In addition to these, other species have been recorded from the east coast of North America (Stimpson), from Greenland (Hansen), and from the British Isles (Norman).

5. **Monoculodes carinatus,** Sp. Bate.

(Pl. 105).

Monoculodes carinatus, Sp. Bate, Catal. Amph. Brit. Mus. p. 104, Pl. XVII, fig. 2.

Syn: Monoculodes Stimpsonii, Sp. Bate.
„ Œdiceros affinis, Bruzelius (not Goës).
„ Monoculodes affinis. Boeck.

Body somewhat robust, and rather tumid in its anterior part, with the segments sharply defined, those of metasome distinctly carinated dorsally. Cephalon nearly as long as the first 3 segments of mesosome combined, frontal part strongly vaulted anteriorly, and produced to a compartively short curved rostrum, not quite reaching to the end of the basal joint of the superior antennæ. First pair of coxal plates rather expanded distally, and broader than the 2 succeeding pairs; 4th pair deeper than the corresponding segment, terminal edge strongly curved in the middle, infero-posteal corners but little produced; 5th pair somewhat less deep than the 4th, but much broader, especially in the female. Eyes very large, elliptical in form, and filling up the greater part of the front, pigment purplish with a yellowish coating. Superior antennæ in female about the length of the cephalon and the first 2 segments of mesosome combined, and somewhat shorter than the peduncle of the inferior ones, 1st joint of the peduncle about the length of the 2nd, but considerably thicker, flagellum much shorter than the peduncle, and composed of 8 articulations only; those of adult male having the 2nd joint of the peduncle much shorter than in female, whereas the flagellum is more strongly developed, and thickened at the base, with some of the joints densely clothed with sensory bristles. Inferior antennæ in female nearly twice as long as the superior ones, last joint of the peduncle very elongated and slender, equalling in length the 3 preceding joints combined, flagellum about as long as the 2 last joints of the peduncle taken together; those of adult male less elongated than usual, and but little exceeding half the length of the body. Anterior gnathopoda rather strong, propodos oval in form, about twice as long as it is broad, palm very oblique, and longer than the hind margin, from which it is difined by a very slight angle armed with a slender spinule, carpal lobe densely setous, linguiform, and produced beyond the hind margin of the propodos. Posterior gnathopoda very slender, propodos nearly linear in form, and more than 4 times as long as it is broad, palm short and somewhat oblique, but distinctly defined below, carpal process extremely narrow and elongated, extending somewhat beyond the hind margin of the propodos. Pereiopoda, saving the last pair, comparatively short and stout, and very densely setous, dactylus in all extremely small, propodal joint of the 2 anterior pairs rather narrow and longer than the carpal one. Last pair of pereiopoda much elongated, considerably exceeding half the length of the body, basal joint oval, with the posterior edge somewhat irregularly curved, and fringed with short bristles, the 3 outer joints nearly of equal length, each longer than the meral one. Last pair of uropoda with the rami longer than the basal part, and narrow lanceolate in form, each armed with about 5 strong spines. Telson oval quadrangular, somewhat dilated in the middle, terminal edge transversely truncated. Body more or less densely mottled with a yellowish white and a dark brownish pigment, the latter forming partly transverse bands, of which that extending across the 1st segment of mesosome and corresponding coxal plates, is generally the most conspicuous one; ova in the marsupial pouch of a fine rose colour. Length of adult female 11 mm, that of male 9 mm.

Remarks. — There cannot, in my opinion, be any doubt about the identity of the above-described form with the *M. carinatus* of Sp. Bate. As this name is much older than that of *affinis* proposed by Bruzelius and adopted by Boeck, the species ought to be named as above. According to Mr. Norman, the *M. Stimpsonii* of Sp. Bate is only the young male of this species. From the other forms belonging to this genus, the present one may be easily distinguished by the strongly-vaulted frontal part, the very large elliptical eyes, and the densely setous pereiopoda, the dactylus of which is moreover extremely small.

Occurrence. — I have met with this form rather abundantly off Jæderen, south coast of Norway, in a depth of 2—10 fathoms, fine sand. Quite solitary I have also found it at Bejan, outer part of the Trondhjemsfjord, and at Apelvær (Namdal). Boeck records it from 3 other places off the west coast of Norway, viz., Haugesund, Aalesund and Christiansund.

Distribution. — British Isles (Sp. Bate), coast of Bohuslän (Bruzelius), Kattegat (Meinert), coast of France (Chevreux).

6. **Monoculodes tessellatus,** Schneider.

(Pl. 106, fig. 1).

Monoculodes tessellatus, Schneider, Tromsø Museums Aarshefter VII, p. 81.
Syn: Monoculodes norvegicus, Schneider (olim.)

Form of body resembling that in the preceding species, though being perhaps a little more slender. Metasome scarcely carinated dorsally. Cephalon not nearly attaining the length of the 3 anterior segments of mesosome combined, frontal part somewhat less produced than in *M. carinatus*, but with the rostrum comparatively larger, reaching to the end of the basal joint of the superior antennæ, upper contour of cephalon forming a perfectly even curve until the tip of the rostrum. First pair of coxal plates but little expanded distally, and nearly quadrangular in form; 4th pair about as deep as the corresponding segment, distal edge evenly curved, infero-posteal corners somewhat produced. Eyes large, with the visual elements well developed, but of more rounded form than in *M. carinatus,* pigment bright red. Superior antennæ in female about the length of the cephalon and the 2 anterior segments of mesosome combined, and reaching a little beyond the peduncle of the inferior ones, 1st joint of the peduncle equalling in length the other 2 combined, flagellum nearly as long as the peduncle, and composed of about 11 articulations. Inferior antennæ scarcely more than $^1/_3$ longer than the superior, last joint of the peduncle shorter than the penultimate one, flagellum nearly as long as the peduncle. Antennæ in male modified in the usual manner, the inferior ones about equalling in length the whole body. Anterior gnathopoda somewhat less strong than in *M. carinatus*, propodos oval in form, with the palm more distinctly defined below, and about the length of the hind margin, carpal lobe rather short and broad, not nearly extending to the palm of the propodos. Posterior gnathopoda less slender than in the said species, propodos comparatively broader in proportion to its length, being scarcely more than 3 times as long as it is broad, carpal process scarcely extending beyond the hind margin of the propodos. Pereiopoda comparatively less robust, and not so richly setous, dactylus rather elongated, equalling in length the propodal joint, the latter in the 2 anterior pairs scarcely longer than the carpal joint. Last pair of pereiopoda scarcely exceeding half the length of the body, carpal joint much shorter than the propodal one, and not fully attaining the length of the meral joint. Telson comparatively small, rounded, tip distinctly insinuated. Body whitish, ornamented, on the back, with dark brownish patches rather regularly alternating with each other, and thus exhibiting a peculiar tessellated appearance. Length of adult female 8 mm.

Remarks. — This form was at first described by Mr. Schneider under the name of *M. norvegicus*, Boeck. Subsequently, recognizing its distinctness from that species, he proposed for it the name of *tessellatus* owing to the peculiar colouring of the body, I have myself formerly confounded it with *M. carinatus* Sp. Bate, to which it bears some resemblance as regards the outward appearance. From both these species it may, however, on closer examination, be distinguished by several well-marked characteristics, the form of the cephalon being the most conspicuous one.

Occurrence. — Off the whole coast of Finmark this species is rather commonly met with in moderate depths ranging from 20 to 50 fathoms. It extends southwards along the Nordland coast to Kvalø. Off the west and south coasts of Norway, I have, on the other hand, never met with this species, and it thus would seem to be an exclusively northern form. Out of Norway it has not yet been recorded.

7. **Monoculodes borealis**, Boeck.

(Pl. 106, fig. 2).

Monoculodes borealis, Boeck, Crust. amph. bor. & arct. p. 88.
Syn: Œdiceros affinis, Goës (part).

Body somewhat slender, and not very tumid in its anterior part, metasome scarcely carinated dorsally. Cephalon exceeding in length the 3 anterior segments of mesosome combined, frontal part rather produced, rostrum abruptly deflexed, thus giving the upper contour of cephalon in front a geniculated appearance, its tip sharply pointed and reaching about to the end of the basal joint of the superior antennæ, lateral corners of cephalon rectangular. First pair of coxal plates considerably expanded distally, 3rd pair somewhat obliquely truncated at the tip; 4th pair a little deeper than the corresponding segment, distal edge strongly curved in the middle, infero-posteal corners but slightly produced. Eyes not very large, rounded, placed just within the geniculated part of the front, pigment dark red. Superior antennæ in female about the length of the cephalon and the 3 anterior segments of mesosome combined, and but slightly reaching beyond the peduncle of the inferior ones, 1st joint of the peduncle a little longer than the 2nd, flagellum much shorter than the peduncle, and composed of 8 articulations only. Inferior antennæ with the last joint of the peduncle shorter than the penultimate one, flagellum (in female) about the length of those joints combined. Anterior gnathopoda of moderate size, propodos oblong oval in form, more than twice as long as it is broad, palm scarcely longer than the hind margin, carpal lobe not extending to the palm of the propodos. Posterior gnathopoda comparatively strong, propodos about 3 times as long as it is broad, carpal process not fully extending to the palm of the propodos. The 2 anterior pairs of pereiopoda rather stout, basal joint strongly curved and considerably dilated distally, carpal joint short and broad, nearly heart-shaped, forming inferiorly a rounded, densely setous expansion, propodal joint considerably longer and somewhat curved, dactylus not attaining the length of the latter. The 2 succeeding pairs nearly as in *M. tessellatus*. Last pair very elongated, considerably exceeding half the length of the body, basal joint obpyriform in outline, carpal joint about the length of the propodal one, and longer than the meral joint. Telson rounded quadrangular, terminal edge slightly insinuated. Body yellowish white, variegated, on the dorsal face, with a dark brownish pigment, forming broad bands across the segments, and a distinct reticulation on the sides of the cephalon. Length of adult female 10 mm.

Remarks. — This species was established by Boeck to include one of the 2 forms erroneously referred by Goës to *M. affinis* of Bruzelius, and represented in fig. 21 [1] by the latter author. It is easily recognized from any of the other species by the abruptly geniculated frontal part.

Occurrence. — The species is rather commonly met with off the whole coast of Finmark, as also off the Lofoten Isles. It extends southwards at least to the Trondhjemsfjord, where I have collected it in some places in great abundance.

Distribution. — Arctic Ocean: Spitsbergen (Goës), Greenland (Hansen), the Siberian Polar Sea (Stuxberg); British Isles (Robertson).

8. **Monoculodes pallidus**, G. O. Sars, n. sp.

(Pl. 106, fig. 3).

Body somewhat compressed, and having the segments sharply defined, though not exhibiting any distinct dorsal keel. Cephalon not attaining the length of the 3 anterior segments of mesosome combined, frontal part not much produced, and continued to a very narrow and acute, evenly-curved rostrum, which however does not extend to the end of the basal joint of the superior antennæ; lateral corners of cephalon obtuse. First pair of coxal plates but very little expanded distally, and scarcely broader than the succeeding pair; 4th pair about as deep as the corresponding segment, distal edge evenly curved, infero-posteal corners rather produced. Eyes comparatively small, rounded, with imperfectly-developed visual elements, otherwise of the usual appearance, pigment light red. Superior antennæ in female nearly attaining the length of the cephalon and the 4 anterior segments of mesosome combined, and reaching somewhat beyond the peduncle of the inferior ones, 2nd joint of the peduncle very elongated and slender, considerably exceeding in length the 1st one, flagellum shorter than the peduncle, and composed of about 9 articulations. Inferior antennæ about $^1/_3$ longer, the 2 outer joints of the peduncle nearly of equal length, flagellum but little shorter than the peduncle. Anterior gnathopoda comparatively rather short and stout, propodos oval in form, about twice as long as it is broad, and somewhat curved, palm distinctly defined below, and about the length of the hind margin, carpal lobe narrow linguiform and produced beyond the latter. Posterior gnathopoda more slender, propodos narrow and elongated, more than 3 times as long as it is broad, carpal process extremely slender, extending far beyond the hind margin of the propodos. The 2 anterior pairs of pereiopoda rather strong, carpal joint comparatively large, about the length of the meral joint, broadest at the base and gradually tapering distally, with the inferior edge arcuate and densely setous, propodal joint nearly of same length but much narrower, dactylus scarcely more than half the length of the latter joint, and rather slender. The 2 succeeding pairs of the usual structure, with the dactylus rather short and somewhat compressed. Last pair of the usual slender form, basal joint rather broad, rounded oval, with the posterior edge arcuate, carpal joint about the length of the propodal one, and but little longer than the meral joint. Telson comparatively small, quadrangular, tip transversely truncated. Body whitish, pellucid, without any trace of pigmentary ornamentation. Length of adult female 8 mm.

Remarks. — As to the structure of the gnathopoda, this new species agrees somewhat with *M. carinatus*, but is easely distinguishable by the very narrow and acuminate rostrum, the small size of the eyes, the comparatively much more elongated superior antennæ, and finally, by the absolute want of any pigmentary ornamentation.

Occurrence. — I have met with this form in a few places off the west coast of Norway, and recently also in the Trondhjemsfjord and at Apelvær, Namdal. It is a true deep-water form, occurring only in depths ranging from 60 to 200 fathoms.

9. **Monoculodes norvegicus**, Boeck.

(Pl. 107. fig. 1).

Monoculodes norvegicus, Boeck, Crust. amph. bor. & arct. p. 84.

Body comparatively rather short and stout, though somewhat compressed. Cephalon about the length of the 3 anterior segments of mesosome combined, evenly curved in front, and produced to an acuminate deflexed rostrum reaching beyond the basal joint of the superior antennæ. Anterior pairs of coxal plates comparatively deeper than in the preceding species; 1st pair but slightly expanded in their outer part; 4th pair rather narrow in proportion to their depth, infero-posteal corners a little produced. Eyes rather large, oval in form, placed as usual close together at the base of the rostrum, pigment dark red. Superior antennæ about the length of the cephalon and the 3 anterior segments of mesosome combined, and reaching considerably beyond the peduncle of the inferior ones, 1st joint of the peduncle fully as long as the other 2 combined, flagellum longer than the peduncle, and composed of about 12 articulations. Inferior antennæ (in female) scarcely longer than the superior, the 2 last joints of the peduncle about equal-sized, flagellum not attaining the length of those joints combined. Anterior gnathopoda not very strong, propodos oblong oval in form, slightly curved, and somewhat expanded distally, palm well-defined and scarcely as long as the hind margin, carpal lobe rather large and broad, extending to the palm of the propodos. Posterior gnathopoda rather slender, propodos very narrow, nearly 4 times as long as it is broad, carpal process extending about to the end of the hind margin of the propodos. Pereiopoda very slender, carpal joint of the 2 anterior pairs but little expanded, and considerably shorter than the propodal joint, dactylus slender and elongated, though not quite attaining the length of the propodal joint. Last pair of pereiopoda considerably exceeding half the length of the body, basal joint rather broad, with the posterior edge strongly arched, carpal joint longer than the 2 preceding joints combined, and somewhat exceeding the length of the propodal one. Telson quadrangular, but little longer than it is broad, terminal edge scarcely insinuated. Body whitish, ornamented with a reddish brown pigment, forming broad transversal bands extending down the coxal plates. Length of adult female scarcely exceeding 6 mm.

Remarks. — The present species, established by Boeck, may be readily distinguished from those described above by its comparatively short and stout form of body, by the acute deflexed rostrum, and the comparatively very slender pereiopoda, finally by the colour of the body, which is distinct even in specimens for a long time preserved in spirit.

Occurrence. — Though nowhere in any considerable number, I have met with this species in several places, both on the south and west coasts of Norway, and northwards even to Vadsø. It is a true deep-water form, only occurring in depths ranging from 50 to 200 fathoms.

Distribution. — Kattegat (Meinert).

10. **Monoculodes falcatus**, G. O. Sars, n. sp.

(Pl. 107, fig. 2).

Form of body nearly as in *M. norvegicus*. Cephalon exceeding in length the 3 anterior segments of mesosome combined, and produced to a very large and curved rostrum, reaching considerably beyond the basal joint of the superior antennæ, dorsal contour of cephalon forming a perfectly even and uninterrupted curve until the tip of the rostrum. First pair of coxal plates considerably expanded distally; 4th pair comparatively broader than in *M. norvegicus*, with the infero-posteal corners but little produced Eyes of normal appearance, rather large, rounded oval in form, pigment bright red. Superior antennæ exceeding the length of the cephalon and the 3 anterior segments of mesosome combined, 1st joint of the peduncle fully as long as the other 2 taken together, flagellum longer than the peduncle, and composed of about 13 articulations. Inferior antennæ but little longer than the superior, last joint of the peduncle shorter than the penultimate one, flagellum about the length of those joints combined. Anterior gnathopoda rather feeble, propodos narrow oblong and somewhat curved, more than twice as long as it is broad, with the palm shorter than the hind margin, carpal lobe considerably smaller than in *M. norvegicus*, and not extending to the palm of the propodos. Posterior gnathopoda very slender, propodos narrow sublinear, more than 4 times as long as it is broad, carpal process not nearly extending to the palm of the propodos. Pereiopoda somewhat less slender than in *M. norvegicus*, carpal joint of the 2 anterior pairs slightly expanded, dactylus comparatively shorter. Last pair of pereiopoda nearly as in that species. Telson oblong quadrangular, terminal edge distinctly insinuated. Body of a more or less dark orange colour, but without any pigmentary markings. Length of adult female reaching 10 mm.

Remarks. — I have formerly confounded this form with *M. norvegicus*, which species, indeed, is its nearest ally. On closer examination it may, however, easily be distinguished by the very large and evenly-curved rostrum, the less slender form of the pereiopoda, and especially by the very different colouring of the body. It also grows to a much larger size than that species.

Occurrence. — Off the west coast of Norway this form is not rarely found in greater depths, from 50 to 100 fathoms. It extends northwards along the Nordland coast to Selsovig lying exactly within the polar circle. Off the coast of Finmark I have, on the other hand, not met with it.

11. **Monoculodes tuberculatus**, Boeck.

(Pl. 107, fig. 3).

Monoculodes tuberculatus Boeck, Crust. amph. bor. & arct. p. 87.

Syn. Œdiceros affinis, Goës (part).

Body rather stout, with the segments sharply defined. Cephalon not attaining the length of the 3 anterior segments af mesosome combined, frontal part strongly convex, rostrum rather large, deflexed, acute, reaching beyond the basal joint of the superior antennæ. First pair of coxal plates rather expanded distally, 4th pair somewhat deeper than the corresponding segment, and regularly quadrangular in form, with the distal edge evenly curved and the infero-posteal corners but little produced. Eyes of moderate size, placed within the strongly convex fore-part of the front, pigment bright red. Superior antennæ in female about the length of the cephalon and the 3 anterior segments of mesosome combined, 1st joint of the peduncle equalling the length of the other 2 taken together, 2nd joint produced at the end anteriorly to a nodiform projection provided with stiff anteriorly curving bristles, flagellum a little longer than the peduncle, and composed of about 8 articulations. Inferior antennæ scarcely longer than the superior, last joint of the peduncle shorter than the penultimate one, flagellum scarcely more than half as long as the peduncle. Anterior gnathopoda rather strong, propodos somewhat curved, and oblong oval in form, with the palm about the length of the hind margin, carpal lobe comparatively short, not extending to the palm of the propodos. Posterior gnathopoda a little more slender than the anterior, though scarcely longer, propodos about 3 times as long as it is broad, carpal process not extending to the palm of the latter. The 2 anterior pairs of pereiopoda nearly as in *M. pallidus*; the 2 succeeding ones with the basal joint comparatively broader and the propodal joint longer. Last pair of pereiopoda extremely elongated, propodal joint the longest, and provided on both edges with slender setæ, carpal joint exceeding the length of the 2 preceding joints combined, terminal joint very narrow. Telson oval quadrangular, with the terminal edge slightly insinuated. Colour yellowish, with shadows of a diffuse orange pigment; ova in the marsupial pouch dark violet. Length of adult female 7 mm.

Remarks. — There cannot, I think, be any doubt that Dr. Hansen is right in considering the fig. 21 (not fig. 21[1]) given in Goës's paper to be referable to the present species, and not, as suggested by Boeck, to *M. norvegicus.* In his short diagnosis Goës, moreover, makes mention of the characteristic nodiform projection of the 2nd joint of the superior antennæ, of which there is no trace in any of the other species, and which indeed has given rise to the specific apellation proposed by Boeck for this species.

Occurrence. — Though nowhere in any abundance, I have met with this form in several places off the west coast of Norway, as also in the Trondhjemsfjord, in depths ranging from 50 to 100 fathoms. It also occurs off the Finmark coast, having been found by Mr. Schneider in the neighbourhood of Tromsø and by myself in the Varangerfjord.

Distribution. — Spitsbergen (Goës), Greenland (Hansen).

12. **Monoculodes lâtimanus** (Goës).

(Pl. 108, fig. 1.)

Œdiceros latimanus, Goës, Crust. amph. maris Spetsberg.; p. 11, fig. 23.

Body a little more slender than in the 3 preceding species, and rather compressed. Cephalon not attaining the length of the 3 anterior segments of mesosome combined, frontal part but little produced, and evenly convex anteriorly, rostrum very short and obtuse, scarcely reaching beyond the middle of the basal joint of the superior antennæ, lateral corners of cephalon rather produced, but obtusely truncated at the tip. First pair of coxal plates considerably expanded in their outer part, 4th pair scarcely deeper than the corresponding segment, and having the infero-posteal corners but little produced. Eyes comparatively small, rounded, but of usual appearance, pigment dark red. Superior antennæ not attaining the length of the cephalon and the 3 anterior segments of mesosome combined, joints of the peduncle successively diminishing in size, flagellum about the length of the peduncle, and composed of 10 articulations. Inferior antennæ somewhat longer than the superior, last joint of the peduncle a little shorter than the penultimate one, flagellum about the length of the peduncle. Both pairs of gnathopoda rather strong, the anterior ones having the propodos considerably expanded and oval in form, with the palm much longer than the hind margin, carpal lobe comparatively short. Posterior gnathopoda af somewhat unusual form, the propodos being very large, oblong oval in form and somewhat widening distally, with the palm very oblique and about the length of the hind margin, carpal process unusually small, scarcely extending beyond the middle of the hind margin of the propodos. The 2 anterior pairs of pereiopoda moderately strong, with the propodal joint about the length of the carpal one, and somewhat dilated in the middle, dactylus comparatively short; the 2 succeeding pairs of the usual structure, and having the dactylus somewhat more elongated. Last pair of pereiopoda about half the length of the body, the 4 outer joints nearly equal in length. Telson comparatively small, but little longer than it is broad, terminal edge obtusely rounded. Colour pale yellowish, without any distinct pigmentary markings; ova in the marsupial pouch dark violet. Length of adult female 7 mm.

Remarks. — This is a rather anomalous species, differing, as it does, very markedly from those previously described, by the short and obtuse rostrum and by the unusually strong structure of the posterior gnathopoda.

Occurrence. — The species is found rather sparingly off the coast of Finmark, thus at Vadsø and in the neighbourhood of Tromsø, in depths ranging from 10 to 50 fathoms. It also occurs off the Lofoten Isles, and extends southwards to Apelvær, Namdal.

Distribution. — Spitsbergen (Goës), Greenland (Hansen).

13. **Monoculodes Kröyeri**, Boeck.

(Pl. 108, fig. 2).

Monoculodes Kröyeri, Boeck, Crust. amph. bor. & arct. p. 86.

Body very strongly built, and much tumefied in its anterior part, with the segments very sharply defined. Cephalon about the length of the 3 anterior segments of mesosome combined, frontal part horizontally produced, vaulted above at the tip, and exhibiting only a very slight trace of a rostrum, the tip of which reaches but little beyond the middle of the basal joint of the superior antennæ, lateral corners of cephalon somewhat produced, though obtuse at the tip. First pair of coxal plates somewhat expanded distally; 3rd pair with the terminal edge slightly insinuated; 4th pair scarcely as deep as the corresponding segment, distal edge strongly curved, infero-posteal corners but little produced. Eyes not very large, rounded, and placed close together at the tip of the frontal part. Superior antennæ about the length of the cephalon and the first 3 segments of mesosome combined, 2nd joint of the peduncle fully as long as the 1st, flagellum comparatively short, not attaining half the length of the peduncle, and composed of about 12 articulations. Inferior antennæ considerably longer than the superior, last joint of the peduncle about the length of the penultimate one, but much narrower, flagellum exceeding the length of those joints combined. Anterior gnathopoda of the usual structure, propodos oval in form, and somewhat curved, with the palm about the length of the hind margin, carpal lobe rather large, reaching nearly to the palm of the propodos. Posterior gnathopoda comparatively strong, propodos oblong, not quite 3 times as long as it is broad, palm very oblique, though a little shorter than the hind margin, carpal process extending to the palm of the propodos. Pereiopoda unusually strongly built, the 4 anterior pairs having the joints laminarly expanded and densely setous, dactylus shorter than the propodal joint and rather broad, laminar. Last pair of pereiopoda considerably exceeding half the length of the body, basal joint very broad in its proximal part, carpal joint the longest. Telson oval quadrangular, slightly tapering in its outer part, terminal edge transversely truncated. Colour in the living state of the animal not yet stated. Length of adult female reaching 17mm.

Remarks. — In its outward appearance this species bears a perplexing resemblance to a *Parœdiceros*, having the body of a similar robust form, and the frontal part produced in much the same manner. The structure of the gnathopoda. however, shows the form to be a true Monoculodes. From the following nearly, related species, it may be at once distinguished, by its robust form of body, and by the far less produced frontal part.

Occurrence. — I have never myself met with this species, but Boeck states its occurrence at Haugesund, west coast of Norway.

Distribution. — Greenland (Hansen).

14. **Monoculodes longirostris** (Goës).

(Pl. 108, fig. 3).

Œdiceros longirostris, Goës, Crust. amph. maris Spetsbergiæ, p. 10, fig. 20.

Body much less strongly built than in *M. Kröyeri*, and rather compressed. Cephalon attaining the length of the 4 anterior segments of mesosome combined, frontal part greatly produced and horizontally projected, reaching beyond the basal joint of the superior antennæ, its tip somewhat vaulted above, with only a very slight trace of a rostrum; lateral corners of cephalon somewhat produced, though obtuse at the tip. First pair of coxal plates moderately expanded distally; 3rd pair with the terminal edge, as in *M. Kröyeri*, distinctly insinuated; 4th pair deeper than the corresponding segment, distal edge obtusely angulated in the middle, infero-posteal-corners somewhat produced. Eyes oval in form, and rather large, placed close together at the tip of the frontal part. Superior antennæ about the length of the cephalon and the first 3 segments of mesosome combined, 2nd joint of the peduncle very slender and fully as long as the 1st, flagellum somewhat exceeding half the length of the peduncle, and composed of about 12 articulations. Inferior antennæ longer than the superior, last joint of the peduncle somewhat shorter, and much narrower, than the penultimate one, flagellum about the length of the peduncle. Anterior gnathopoda of moderate size, propodos oval in form, about twice as long as it is broad, palm shorter than the hind margin, carpal lobe scarcely extending to the palm of the propodos. Posterior gnathopoda somewhat more slender, propodos oblong in form, more than twice as long as it is broad, and slightly widening distally, palm much shorter than the hind margin, carpal process not extending to the palm of the propodos. The 4 anterior pairs of pereiopoda rather strong, though somewhat less so than in *M. Kröyeri*, dactylus attaining the length of the propodal joint, and lanceolate in form. Last pair of pereiopoda slender and elongated, basal joint less broad than in the above species, carpal joint about the length of the propodal one, and longer than the 2 preceding joints combined, terminal joint extremely slender and elongated. Telson oval quadrangular, tip transversely truncated. Body, according to the statement of Mr. Schneider, semi-pellucid, whitish, sometimes, in full-grown specimens, slightly variegated with dark brownish pigment. Length of adult female 12 mm.

Remarks. — The specific name «*longirostris*», proposed by Goës, for this form, is somewhat inappropriate, since the true rostrum in reality is very small, the part so called by Goës being merely the frontal part of the cephalon. It is nearly related to *M. Kröyeri*, but at once distinguishable from it by the far less strongly built body, and especially by the greatly produced frontal part of the cephalon.

Occurrence. — According to Boeck a single specimen of this form was collected by the late Prof. Esmark off the Finmark coast. Mr. Schneider has found it in the neighbourhood of Tromsø, and during the Norwegian North Atlantic Expedition a few specimens were collected in the Saltenfjord.

Distribution. — Spitsbergen (Goës), Kattegat (Meinert).

15. **Monoculodes Packardi**, Boeck.

(Pl. 109, fig. 1).

Monoculodes Packardi, Boeck, Crust. amph. bor. & arctica, p. 86.

Body comparatively slender, especially in the male, with very thin and pellucid integuments. Cephalon about the length of the first 3 segments of mesosome combined, frontal part somewhat convex anteriorly and produced to a very narrow and acute, slightly curved rostrum, which however does not extend to the end of the basal joint of the superior antennæ, lateral corners of cephalon obtusely rounded. First pair of coxal plates somewhat expanded distally; 3rd pair much broader than the 2nd, terminal edge not insinuated; 4th pair in female about as deep as the corresponding segment, distal edge evenly curved, infero-posteal corners very little produced. Coxal plates in the adult male comparatively much smaller than in female. Eyes rather small, rounded oval, placed above at the base of the rostrum within the most convex part of the front, pigment light red. Antennæ rather slender; the superior ones in female about the length of the cephalon and the first 4 segments of mesosome combined, 2nd joint of the peduncle very much elongated and narrow, exceeding in length the 1st, flagellum somewhat shorter than the peduncle, and composed of about 9 articulations; those in adult male comparatively more strongly built, 2nd joint of the peduncle scarcely longer than the 1st, flagellum exceeding in length the peduncle, and having the 5—6 first joints thickened and densely clothed with sensory bristles. Inferior antennæ in female but little longer than the superior, last joint of the peduncle nearly as long as the penultimate one, both rather densely setous, flagellum about the length of the peduncle; those in adult male very slender and elongated, attaining the length of the whole body, peduncle nearly naked, flagellum extremely slender and filiform. Anterior gnathopoda not very strong, propodos oblong oval in form, and but little expanded distally, palm about the length of the hind margin, and not defined below by any distinct denticle, carpal lobe comparatively small, not nearly extending to the palm of the propodos, and only provided with a few very short bristles. Posterior gnathopoda somewhat more elongated, propodos more than twice as long as it is broad, and but slightly widening distally, palm, as in the anterior pair, imperfectly defined below, carpal process attenuated, and extending about to the palm of the propodos. The 4 anterior pairs of pereiopoda rather slender, with the dactylus, especially of the 3rd and 4th pairs, very much elongated, far longer than the propodal joint, and falciform compressed. Last pair of pereiopoda of the usual slender form, basal joint rather broad, and having the posterior edge strongly arcuate above the middle and fringed with delicate bristles, carpal joint shorter than the meral one, propodal joint rather elongated. Last pair of uropoda with the rami about the length of the basal part, and quite unarmed. Telson oblong oval in form, tapering but little distally, tip rounded, and armed with 2 rather strong denticles placed close together. Body pellucid, whitish, with a more or less distinct orange-coloured tinge on the back, antennæ banded with orange; ova in the marsupial pouch rose-colored. Length of adult female 7 mm, of male about the same.

Remarks. — The present species, established by Boeck, is easily distinguishable from those previously described by the very thin and pellucid integuments, and the slender pereiopoda, the dactylus of which moreover is of quite an unusual length.

Occurrence. — The species is rather commonly met with along the whole coast of Norway, from the Christianiafjord to Vadsø, occurring in some places, as in the Trondhjemsfjord, even in great abundance. It is found in depths varying from 10 to 100 fathoms, especially on soft bottom. By inadvertence it was omitted in the list of Crustacea given in my «Oversigt».

Distribution. — British Isles (Norman).

16. **Monoculodes tenuirostratus,** Boeck.

(Pl. 109, fig. 2).

Monoculodes tenuirostratus, Boeck, Crust. amph. bor. & arct. p. 98.

Very like *M. Packardi*, as to the outward appearance. Cephalon with the upper contour forming a perfectly even and uninterrupted curve until the tip of the rostrum, the latter very long and narrow, reaching nearly to the end of the basal joint of the superior antennæ. First pair of coxal plates obliquely expanded distally; 3rd pair but little broader than the 2nd; 4th pair somewhat deeper than the corresponding segment, distal edge strongly arcuate in the middle, infero-posteal corners somewhat more produced than in *M. Packardi.* Eyes in alcoholic specimens but very faintly traced. Antennæ rather elongated, the superior ones attaining nearly half the length of the body, 2nd joint of the peduncle much longer than the 1st, flagellum shorter than the peduncle, and composed of about 12 articulations. Inferior antennæ scarcely longer than the superior, last joint of the peduncle not attaining the size of the penultimate one, flagellum somewhat shorter than the peduncle. Both pairs of gnathopoda much stronger than in *M. Packardi*, the anterior ones with the propodos considerably expanded distally, palm defined below by a distinct angle provided with the usual denticle, carpal lobe rather large and broad, densely setous, and reaching about to the palm of the propodos. Posterior gnathopoda with the propodos of considerable size, scarcely more than twice as long as it is broad, and gradually expanded distally, palm about the length of the hind margin, and distinctly defined below. Pereiopoda nearly as in *M. Packardi.* Telson oval triangular, outer part tapering to an obtusely rounded point armed with 2 denticles. Colour in the living state of the animal not yet stated. Length of female 8 mm.

Remarks. — Though very nearly allied to *M. Packardi*, this species, established by Boeck, may be distinguished from it by the considerably longer rostrum, and by the much more powerful structure of the gnathopoda, as also by the form of the telson.

Occurrence. — Boeck detected this form in the Christianiafjord, which, as yet, is the only place on the coast of Norway, where the species has been observed.

Distribution. — Stat. 40, 48 and 240 of the Norwegian North Atlantic Expedition.

Gen. 4. **Monoculopsis**, G. O. Sars, n.

Syn: Monoculodes, Boëck (part.)

Form of body about as in *Monoculodes.* Cephalon but very little produced in front, rostrum short and obtuse. Fourth and 5th pairs of coxal plates (in female) very large. Eyes confluent, placed within the front above the bases of the superior antennæ. The latter (in female) longer than the inferior, last joint of the peduncle unusually elongated, flagellum short. Oral parts about as in *Monoculodes,* except that the mandibular palp is somewhat smaller, with the terminal joint shorter than the middle one. Anterior gnathopoda with the carpal lobe very large and projecting; posterior ones extremely slender, with the propodos much elongated and tapering distally, and the carpal process slender and produced. The 4 anterior pairs of pereiopoda comparatively short and stout, and densely setous; last pair of the usual slender form. Uropoda and telson about as in *Monoculodes.*

Remarks. — I have felt justified in establishing this new genus in order to include the rather anomalous form described by Boeck as *Monuculodes longicornis.* The genus is chiefly characterised by the very slightly produced frontal part of the cephalon, by the superior antennæ in female being longer than the inferior, and having the 3rd joint of the peduncle unusually elongated, and finally by the peculiar structure of the posterior gnathopoda. In some of these characteristics it approaches the following genus, *Perioculodes,* from which it however differs in the structure of the eyes, the mandibles and the gnathopoda. It comprises as yet but a single species, to be described in the sequel.

17. **Monoculopsis longicornis** (Boeck)

(Pl. 110, fig. 1.)

Monoculodes longicornis, Boeck, Crust. amph. bor. & arctica, p. 85.

Body of female rather robust, and greatly tumefied in its anterior part. Cephalon scarcely exceeding in length the first 2 segments of mesosome combined, frontal part produced to a very short triangular rostrum, lateral corners nearly rectangular. The 3 anterior pairs of coxal plates comparatively small and successively increasing a little in size; 4th pair very broad, fully as large as the 3 preceding pairs combined, distal edge evenly curved, infero-posteal corners rather produced; 5th pair still broader, but not quite so deep. Eyes rounded, pigment light red, with a whitish coating. Both pairs of antennæ densely setous; the superior ones about the length of the cephalon and the 4 anterior segments of mesosome combined, 2nd joint of the peduncle very slender and much longer than the 1st, 3rd joint about as long as the latter, flagellum scarcely longer than the last joint of the peduncle, and composed of 8 articulations only. Inferior antennæ a little shorter than the superior, last joint of the peduncle exceeding in length the penultimate one, flagellum shorter than those joints combined. Anterior gnathopoda not very strong, basal joint attaining the length of the others combined, propodos oblong oval in form, about twice as long as it is broad, palm very oblique, and about the length of the hind margin, carpal lobe narrowly linguiform, extending considerably beyond the latter. Posterior gnathopoda much longer than the anterior, and rather slender, propodos nearly 5 times as long as it is broad and considerably narrowed in its outer part, palm scarcely equalling $^1/_4$ of the length of the hind margin, carpal process very narrow, styliform, extending far beyond the latter, its tip narrowly blunted. The 2 anterior pairs of pereiopoda having the meral joint rather expanded, and equalling in length the last 2 joints combined, dactylus rather small; the 2 succeeding pairs not very much elongated, basal joint much expanded, meral joint large, dactylus short and broad. Last pair of pereiopoda considerably exceeding half the length of the body, basal joint rather broad, and having the posterior edge smooth and evenly curved, carpal joint about the length of the meral one, and somewhat shorter than the propodal joint, which about equals in length the terminal one. Last pair of uropoda with the rami a little longer than the basal part, narrowly lanceolate, and armed with several small spinules. Telson rounded quadrangular, terminal edge very slightly insinuated. Body whitish, variegated with a pale brownish violaceous pigment dorsally. Length of adult female reaching 9 mm.

Remarks. — The present form was first described by Boeck as a Monoculodes and named *longicornis* probably on account of the unusual length of the superior antennæ in proportion to the inferior ones. It is easily recognized from any of the other Œdiceridæ both by its outward appearance and by several anatomical characteristics, especially the structure of the posterior gnathopoda.

Occurrence. — The only place on the Norwegian coast, where I have met with this form, is at Vadsø. It occurred here rather sparingly in a depth of 10—20 fathoms, sandy bottom. Mr. Schneider has also found it in the neighbourhood of Tromsø, and Boeck states its occurrence as far south as Haugesund, west coast of Norway.

Distribution. — Off Jan Mayen (Norw. North Atl. Exped.).

Gen. 5. **Perioculodes,** G. O. Sars, n.

Syn.: Monoculodes Boeck (part.).

Body comparatively short and stout, with moderately deep coxal plates. Cephalon forming in front a very short deflexed rostral projection. Eyes confluent above, and extending down the sides of the cephalon until the lateral corners, thus forming a continuous coating, surrounding the anterior part of the cephalon, visual elements few in number and highly refractive, though of rather fragile consistency. Superior antennæ in female longer than the inferior, with the last joint of the peduncle very much elongated and narrow; those in male having the outer joints of the peduncle shorter and thicker, and the flagellum more strongly developed. Inferior antennæ in male with the flagellum elongated, filiform. Anterior lip rather broad, and transversely truncated at the tip; posterior lip with the inner lobes coalesced. Mandibles not very strong, molar expansion poorly developed, and tipped with 3 small spinules, but without the usual fluted triturating surface, palp in female rather small, with the last joint short; in male considerably larger. Maxillæ about as in Monoculodes. Maxillipeds with the masticatory lobes rather large, nearly extending to the end of the antepenultimate joint of the palp, and armed on the inner edge with distant slender spines. Gnathopoda nearly equal in structure, though the posterior ones are somewhat more slender than the anterior, propodos in both pairs very narrow, sublinear, carpus produced at the end inferiorly to a very long and slender styliform process stretching along the propodos. Pereiopoda and uropoda about as in Monoculodes. Telson oblong, rounded at the tip.

Remarks. — This new genus is established to include the *Monoculodes longimanus* of Sp. Bate (= M. Grubei Boeck), which in some points differs very markedly both from the genus Monoculodes and from the preceding genus, though being more nearly allied to the latter. As peculiarities of its own may be noted the deviating structure of the gnathopoda, and the very remarkable appearance of the eyes. Also in the structure of the oral parts we find well-marked differences from both the above-named genera. The genus comprises as yet but a single species, to be described in the sequel.

18. **Perioculodes longimanus** (Sp. Bate).

(Pl. 110, fig. 2, Pl. 111, fig. 1).

Monoculodes longimanus, Sp. Bate & Westwood, Brit. sessile eyed Crustacea, Vol. II, Appendix, p. 507.

Syn: Monoculodes Grubei, Boeck.

,, Monoculodes æqvimanus, Norman.

Body glabrous, and somewhat tumid in its anterior part, with broadly rounded back. Cephalon but little exceeding in length the first 2 segments of mesosome combined, rostral projection short and broad, triangular, lateral corners evenly rounded off. First pair off coxal plates slightly expanded distally, and somewhat obliquely truncated at the tip; 2nd and 3rd pairs oblong quadrangular, with a small dentiform projection at the infero-posteal corners; 4th pair nearly as large as the 3 preceding pairs combined, distal edge evenly curved, infero-posteal corners somewhat produced, though obtuse at the tip; 5th pair still broader but less deep. Eyes broadest in their upper part and occupying the whole height of the forepart of the cephalon, pigment bright scarlet, with about 12 brillantly iridescent lenses on each side. Superior antennæ in female about the length of the cephalon and the first 4 segments of mesosome combined, the 3 joints of the peduncle nearly of equal length, flagellum scarcely more than half as long as the peduncle, and composed of about 6 articulations; those in male having the 1st joint of the peduncle nearly as long as the other 2 combined, and the flagellum fully as long as the peduncle, with the 1st joint very large and densely clothed with sensory hairs. Inferior antennæ in female a little shorter than the superior, the last 2 joints of the peduncle nearly equal in length, flagellum about as long as those joints combined; same antennæ in male more than twice as long, and having the flagellum very slender. Anterior gnathopoda with the propodos rather narrow, and oblong in form, nearly 3 times as long as it is broad, palm very oblique, and about the length of the hind margin, carpal process somewhat flexuous and extending far beyond the latter. Posterior gnathopoda somewhat more elongated, with the propodos narrow linear, about 4 times as long as it is broad, palm scarcely attaining half the length of the hind margin, carpal process extending far beyond the tip of the propodos. Pereiopoda moderately slender and densely setous, dactylus of the 2 anterior pairs narrowly acuminate, that of the 2 succeeding pairs lanceolate compressed. Last pair of pereiopoda very elongated and slender, basal joint oval quadrangular, carpal and propodal joints nearly equal in length and each longer than the meral one, terminal joint extremely slender. Last pair of uropoda with the rami about the length of the basal part, very narrow and quite unarmed. Telson nearly twice as long as it is broad, and scarcely tapering distally, tip evenly rounded. Colour uniformly pale orange; ova in the marsupial pouch dark bluish. Length of adult female scarcely exceeding 4 mm., that of male about the same.

Remarks. — As pointed out by the Rev. Mr. Norman, the *Monoculodes Grubei* of Boeck is undoubtedly identical with the *M. longimanus* of Sp. Bate, and, as the latter name is the older, it ought to be retained for the species. In the living state, this animal is, at first sight, recognized from any of the other Œdiceridæ by the peculiar structure of the eyes, which indeed exhibit a most beautiful aspect by their deep scarlet pigment and the brillantly iridescent lenses contained in it. Very soon, however, after being immerged in spirit, the lenses wholly disappear, and even the pigment is only for a short time visible, being also at last dissolved by the action of the spirit. The structure of the gnathopoda will, however, still serve for readily recognizing the species.

Occurrence. — I have met with this form in several places, both off the south and west coasts of Norway, as also in the Trondhjemsfjord, and in every case in rather shallow water, especially where the bottom consists of fine sand. It extends northwards to Røst, the outermost of the Lofoten Isles, and is also occasionally found off the Finmark coast, thus at Hasvig.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux), Mediterranean at Spezia (the author).

Gen. 6. Pontocrates, Boeck, 1870.

Syn.: Kröyera, Sp. Bate (part).

Outward aspect about as in the genus *Monoculodes.* Cephalon produced in front to a short deflexed rostrum. Coxal plates of middle size, 4th and 5th pairs rather large. Eyes contiguous placed above at the base of the rostrum. Antennæ in female nearly equal in length and rather stout, last peduncular joint of the superior ones af usual appearance; inferior antennæ in male elongated and slender. Anterior lip rather broad, nearly quadrate; posterior lip with the inner lobes very small. Mandibles moderately strong, molar expansion of the usual structure, though not very large, palp well developed. Maxillæ comparatively shorter and stouter than in Monoculodes, otherwise of much the same structure. Maxillipeds with the masticatory lobes not very large, scarcely reaching beyond the middle of the antepenultimate joint of the palp, the latter rather large. Gnathopoda very unequal in structure, the anterior ones rather stout, with the propodos large and subcheliform, carpus extremely short, but produced at the end inferiorly to an elongated setous lobe. Posterior gnathopoda much more slender than the anterior, propodos sublinear in form and having the infero-anterior corner produced so as to form with the dactylus a complete chela, carpus very short and produced along the inferior side of the propodos in the form of a narrow spur-like process, the outer part of which projects beyond the chela. The 4 anterior pairs of pereiopoda rather stout and densely setous; last pair of the usual slender and elongated form. Uropoda and telson about as in *Monoculodes.*

Remarks. — This genus was established by Sp. Bate as early as in 1857, but, as his generic name »*Kröyera*» had been appropriated in Zoology, that subsequently proposed by Boeck must be retained for the genus. It is very markedly distinguished from those treated of in the preceding pages by the peculiar structure of the posterior gnathopoda, the propodos of which forms a complete chela. Otherwise it comes rather near to the 2 preceding genera. In the restriction here adopted, it comprises as yet only 2 species, one of which will be described in the sequel, the other being the *Kröyera arenaria* of Sp. Bate.

19. **Pontocrates norvegicus**, Boeck.

(Pl. 111, fig. 2).

Pontocrates norvegicus, Boeck, Crust. amph. bor. & arctica, p. 91.

Syn.: Kröyera altamarina, Sp. Bate.

Body rather stout, and tumid in its anterior part, with broadly-rounded back. Cephalon about the length of the first 2 segments af mesosome combined, its upper contour forming a perfectly even curve until the tip of the short and deflexed rostrum, which latter reaches somewhat beyond the middle of the basal joint of the superior antennæ, lateral corners nearly rectangular. First pair of coxal plates rather small, but somewhat expanded in their outer part, with the distal edge slightly insinuated in the middle; 4th pair fully as large as the 2 preceding pairs combined, and somewhat deeper than the corresponding segment, distal edge evenly curved, infero-posteal corners rather produced; 5th pair nearly as deep as the 4th, and still broader. Eyes rounded, pigment light red with a whitish coating. Antennæ in female rather strongly built and densely setous; the superior ones about twice as long as the cephalon, joints of the peduncle diminishing successively in size, flagellum about the length of the peduncle, and composed of 8 articulations only. Inferior antennæ a little longer than the superior, the 2 last joints of the peduncle rather thick and of equal length, flagellum considerably longer than the peduncle. Antennæ in male modified in the usual manner. Anterior gnathopoda rather strong, basal joint about the length of the other joints combined, propodos oval in form, constricted at the base and considerably expanded distally, palm obliquely arcuate, and somewhat longer than the hind margin, from which it is defined by a distinct angle bearing a slender spine, its edge smooth, having only a row of very small curved spinules alternating with slender hairs, carpal lobe rather narrow and densely setous, projecting far beyond the hind margin of the propodos. Posterior gnathopoda much longer and more slender than the anterior, propodos sublinear, nearly 6 times as long as it is broad, and scarcely tapering distally, thumb of the chela much broader than the dactylus, carpal process but slightly projecting beyond the chela. The 2 anterior pairs of pereiopoda rather stout, with the meral joint considerably expanded at the tip, propodal joint shorter than the carpal one, and having at the tip a dense brush of setæ, dactylus extremely small; 3rd pair unusually short, with the basal joint rather expanded and elliptical in form, meral joint about the length of the 2 last combined, dactylus very small and obtuse at the tip; 4th pair of same structure as the 3rd, but somewhat more elongate; last pair exceeding half the length of the body, basal joint of moderate size, with the posterior edge but slightly curved, the 4 outer joints of almost equal length. Last pair of uropoda with the rami longer than the basal part, and very narrow, each armed with 2 small denticles. Telson rounded oval, but little longer than it is broad, tip obtusely truncated. Colour yellowish, with an orange tinge on the anterior part of the back. Length of adult female 6 mm.

Remarks. — Boeck has erroneously identified this form with the *Kröyera arenaria* of Sp. Bate, which latter, as recently stated by Hoek, is a well-defined species, though evidently congeneric. On the other hand I think Mr. Schneider is right in believing the *Kröyera altamarina* of the same author to be the same species as that described by Boeck. From *P. arenarius* the present species is easily distinguishable by the shorter and more curved rostrum, and especially by the rather different form of the chela of the posterior gnathopoda, as also by the very long carpal process of the same legs.

Occurrence. — The only place, where I have met with this form, is at Hasvig, west Finmark, where some specimens were collected from a depth of 6—10 fathoms, sandy bottom. Mr. Schneider has als found it in east Finmark, at Vardø. Finally Boeck states its occurrence in the Christianiafjord and at Haugesund.

Distribution. — Shetland Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux).

Gen. 7. **Synchelidium,** G. O. Sars, n.

Syn.: Pontocrates, Boeck (part).

Body comparatively more slender than in *Pontocrates*, otherwise of a rather similar aspect. Cephalon produced in front to a more or less strongly deflexed rostrum. Coxal plates of moderate size, and but sparingly setous at the edges, 1st pair rather expanded distally. Eyes as in *Pontocrates*. Antennæ rather slender, the superior ones in female longer than the inferior, and having the last joint of the peduncle rather elongated. Inferior antennæ in male greatly elongated and slender. Anterior and posterior lips about as in *Pontocrates*. Mandibles less strongly developed, with the molar expansion very small, forming only a slight conical projection tipped with a single spine, palp comparatively small, with the terminal joint in female poorly developed. First pair of maxillæ nearly as in the preceding genus; 2nd pair with the lobes very short and broad, the outer one transversely truncated at the tip. Maxillipeds with the masticatory lobes comparatively small, and only armed with a few strong spines on the inner edge. Anterior gnathopoda very powerful, and somewhat resembling those in the preceding genus, but having the palm coarsely dentated and the carpal process nearly bare, tipped by a strong spine. Posterior gnathopoda very slender, with the carpus imperfectly defined from the propodos, the latter much elongated and narrow, tapering distally, and terminating with a minute chela, the thumb of which does not exceed the dactylus in breadth, carpal process completely coalesced with the propodos in its proximal part, only its tip being well defined and projecting beneath the chela. Pereiopoda, uropoda and telson nearly as in *Pontocrates*.

Remarks. — I have found it necessary to establish this new genus, in order to include some species formerly referred to the preceding genus, but materially differing in some essential characteristics, thus, in the structure of the mandibles and that of the posterior gnathopoda. The genus comprises as yet 3 species, to be described in the sequel.

20. **Synchelidium brevicarpum** (Sp. Bate).

(Pl. 112, fig. 1).

Kröyera brevicarpa, Sp. Bate & Westwood, Brit. sess. eyed Crust. Vol. II, Appendix, p. 508.

Body somewhat slender, but with broadly-rounded back and the segments sharply defined. Cephalon nearly attaining the length of the first 3 segments of mesosome combined, rostrum rather short and evenly curved, scarcely extending beyond the middle of the basal joint of the superior antennæ. First pair of coxal plates considerably expanded in their outer part, distal edge straight; 4th pair of moderate size, about as deep as the corresponding segment, distal edge evenly curved, infero-posteal corners but little produced; 5th pair somewhat broader but less deep. Eyes rather large, rounded, placed in the usual manner, pigment bright red, with a whitish coating. Inferior antennæ in female very slender, and more than twice as long as the cephalon, the 2 first joints of the peduncle almost of equal length, 3rd but little shorter, flagellum much shorter than the peduncle, and composed of 5 articulations only; those in male, as usual, more strongly built than in female, having the 2 outer joints of the peduncle much shorter and thicker, and the flagellum fully as long as the peduncle, with the 1st joint very large and densely clothed with sensory hairs. Inferior antennæ in female much shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum about the length of those joints combined; same antennæ in male very much elongated, nearly attaining the length of the whole body. Anterior gnathopoda rather strong, basal joint not attaining the length of the other joints combined, propodos considerably dilated on the middle, nearly fusiform in outline, palm rather arched and much longer than the hind margin, from which it is defined by a distinct angular projection bearing a strong spine, its edge divided into several coarse denticles, 6 of which are rather large and blunted at the tip, carpal lobe somewhat dilated in the middle, outer part attenuated and projecting beyond the palm of the propodos. Posterior gnathopoda moderately slender, propodos somewhat thickened in its proximal part, and gradually tapering distally, chela occupying about 1/5 of the length of the propodos. The 2 anterior pairs of pereiopoda moderately strong, propodal joint about the length of the carpal one, dactylus extremely small; the 2 succeeding pairs increasing successively in length, and having the dactylus somewhat larger. Last pair of pereiopoda very much elongated, with the carpal joint the longest. Last pair of uropoda with the rami narrow lanceolate, and quite unarmed. Telson rather large, oblong oval in form, terminal edge slightly insinuated. Body whitish, ornamented with a dark brownish pigment, which on some of the segments forms distinct transverse bands. Length of adult female scarcely exceeding 4 mm., that of male about the same.

Remarks. — I have but little doubt that the above-described form, now for the first time added to the fauna of Norway, is that briefly characterised by Sp. Bate as *Kröyera brevicarpa.* It may readily be distinguished from the 2 other species belonging to this genus, by the very short and evenly-curved rostrum, the less elongated form of the posterior gnathopoda, and especially by the peculiar colouring of the body, which is well conspicuous even in specimens for a long time preserved in spirit.

Occurrence. — The species is not rarely met with both off the south and west coasts of Norway, as also in the Trondhjemsfjord, in depths varying from 10 to 30 fathoms.

Distribution. — British Isles (Sp. Bate.)

21. **Synchelidium haplocheles** (Grube).

(Pl. 112, fig. 2).

Kröyera haplocheles, Grube, Die Insel Lussin, p. 72.

Syn: Pontocrates haplocheles, Boeck.

Body somewhat less slender than in the preceding species. Cephalon nearly attaining the length of the first 3 segments of mesosome combined, and strongly vaulted in front, rostrum perpendicularly deflexed, acute, and reaching nearly to the end of the basal joint of the superior antennæ, lateral corners somewhat produced, and distinctly angular at the tip. First pair of coxal plates considerably expanded distally, terminal edge quite straight; 4th pair rather large, and considerably deeper than the corresponding segment, infero-posteal corners somewhat produced; 5th pair very broad. Eyes comparatively smaller than in *S. brevicarpum*, rounded, with only few visual elements, pigment bright red, with a chalky white coating. Superior antennæ in female about the length of the cephalon and the first 4 segments of mesosome combined, joints of the peduncle successively diminishing in size, flagellum about the length of the peduncle, and composed of 7 articulations. Inferior antennæ in female much shorter than the superior, flagellum about the length of the peduncle. Anterior gnathopoda very powerful, propodos much expanded, oval triangular in form, palm considerably arched and divided into 7—8 coarse denticles, carpal process about as in *S. brevicarpum*. Posterior gnathopoda extremely slender, and nearly naked, propodos much elongated, and considerably narrowed in its outer part, chela very minute, scarcely occupying more than 1/9 of the length of the propodos. The 2 anterior pairs of pereiopoda with the propodal joint shorter than the carpal one, dactylus very small; the 2 succeeding pairs about as in *S. brevicarpum*. Last pair of pereiopoda with the carpal and propodal joints about of equal length. Telson rather small, roundescarcely longerd, than it is broad, tip very slightly insinuated. Body pellucid, whitish, without any trace of pigmentary ornament; ova in the marsupial pouch orange-coloured. Length of adult female 4 mm.

Remarks. — There cannot be any doubt about the identity of the above-described form with that named by Boeck as *Pontocrates haplocheles*; but whether the form observed by Grube is in reality referable to this species or to either of the 2 other forms here described, seems to be somewhat questionable. Boeck himself would seem to have confounded the 2 above-described species, since he erroneously quotes the *Kröyera brevicarpa* of Sp. Bate as a synonym to his *Pontocrates haplocheles*. The present form, is however, easily distinguishable from the former by the strongly-deflexed rostrum, the more powerful anterior gnathopoda, and the much more slender posterior ones, moreover by the absolute want of any pigmentary ornament on the body.

Occurrence. — This form would seem to be much less common than *S. brevicarpum*. I have only found it quite solitary in a few places off the west coast of Norway, and recently also in the Trondhjemsfjord. It seems to be a true deep-water form, being only met with in depths ranging from 50 to 300 fathoms.

Distribution. — Adriatic (Grube), Kattegat (Meinert), coast of France (Chevreux).

22. **Synchelidium intermedium**, G. O. Sars, n. sp.

(Pl. 113, fig. 1).

In outward appearance, rather resembling *S. haplocheles.* Cephalon, however, much less strongly vaulted in front, rostrum but slightly deflexed, and scarcely reaching beyond the middle of the basal joint of the superior antennæ, lateral corners obtusely rounded off at the tip. First pair of coxal plates much expanded in their outer part, distal edge straight, anterior corner distinctly angular; the succeeding pairs nearly as in *S. haplocheles.* Eyes comparatively small, rounded, with only few visual elements, pigment light red with a whitish coating. Superior antennæ about the length of the cephalon and the first 4 segments of mesosome combined, 2nd joint of the peduncle fully as long as the 1st, flagellum considerably shorter than the peduncle, and composed of 6 articulations only. Inferior antennæ (in female) much shorter than the superior, flagellum scarcely attaining the length of the peduncle. Anterior gnathopoda somewhat less powerful than in *S. haplocheles*, and more resembling those in *S. brevicarpum*, propodos about twice as long as it is broad and oval in form, palm but slightly arcuate and, as in the other species, having the edge divided into several coarse denticles, carpal lobe somewhat less produced. Posterior gnathopoda more slender than in *S. brevicarpum*, but not nearly so much elongated as in *S. haplocheles*, propodos rather narrow and gradually tapering distally, chela occupying about $^1/_6$ of its length. Pereiopoda nearly as in the last-named species, except that the propodal joint of the 2 anterior pairs is somewhat larger, and about the length of the carpal joint. Telson oval in form, considerably longer than it is broad, tip transversely truncated. Body pellucid, whitish, without any pigmentary ornament. Length of adult female 4 mm.

Remarks. — The present new species is somewhat intermediate in character between the 2 above-described species. It agrees with *S. haplocheles* in its outward aspect and the very pellucid and pigment-less body, but differs in the form of the rostrum, in the less powerful anterior gnathopoda, and the less slender posterior ones. In the latter characteristic, it comes somewhat nearer to *S. brevicarpum.*

Occurrence. — I detected this species last summer in the Trondhjemsfjord, at Rødbjerget, where some specimens were collected from a very considerable depth, amounting to 400 fathoms, in company with other true deep-water Amphipoda.

Gen. 8. **Halicreion,** Boeck, 1870.

Outward aspect much as in the genus *Monoculodes.* Cephalon having the frontal part rather produced, and terminating with an acuminate rostrum.

Coxal plates of moderate size, and successively increasing to the 4th pair. Eyes distinct, and of an appearance similar to those in the genus *Monoculodes*. Superior antennæ very unlike in the two sexes, in female rather slender, though somewhat shorter than the inferior ones, in male very robust, the peduncle being greatly tumefied, and the 1st joint of the flagellum of enormous size. Inferior antennæ in both sexes of the very same structure. Oral parts resembling those in the genus *Monoculodes*, except that the masticatory lobes of the maxillipeds are comparatively shorter and broader. Gnathopoda rather strong, and not very unequal in structure, propodos in both pairs subcheliform and oval in shape, carpal lobe in the posterior ones somewhat narrower than in the anterior. Pereiopoda of the usual structure. Last pair of uropoda greatly elongated, and projecting far beyond the other 2 pairs. Telson very small.

Remarks. — This genus, established by Boeck, is nearly related to the genus *Monoculodes*, differing however, in a few points, very markedly, thus in the much smaller size of the masticatory lobes of the maxillipeds, the nearly equal structure of the gnathopoda, and the extremely elongated last pair of uropoda; finally the male is highly characterised by the peculiar modification of the superior antennæ, whereas the inferior ones are not at all different from those in the female. The genus comprises as yet but a single species, to be described in the sequel.

23. **Halicreion longicaudatus**, Boeck.

(Pl. 113, fig. 2).

Helicreion longicaudatus, Boeck, Crust. amph. bor. & arct. p. 93.

Body moderately slender and somewhat compressed. Cephalon nearly as long as the first 3 segments of mesosome combined, its upper contour forming a perfectly even curve until the tip of the rostrum, the latter somewhat compressed, and extending a little beyond the basal joint of the superior antennæ, lateral corners of cephalon somewhat produced, but obtusely rounded off at the tip. First pair of coxal plates scarcely expanded distally and, like the 3 succeeding ones, oblong quadrangular in form; 4th pair somewhat deeper than the corresponding segment and not very broad, infero-posteal corners not at all produced; 5th pair somewhat broader but much less deep. Eyes oval in form, placed just above the base of the superior antennæ, visual elements imperfectly developed, pigment light red. Superior antennæ in female attaining the length of the cephalon and the first 3 segments of mesosome combined, and reaching about to the end of the peduncle of the inferior ones, joints of the peduncle rather elongated and successively diminishing in size, each provided at the end with stiff diverging bristles, flagellum shorter than the peduncle, and composed of 5 articulations only, the last of which is the longest; same antennæ in male very unlike those in female, the peduncle being greatly tumefied and having the 2 outer joints very short and thick, flagellum more than twice as long as the peduncle, with the 1st joint enormously developed, even exceeding in length the remaining 4 joints combined, and provided with dense tufts of long and delicate sensory bristles arranged in a double series. Inferior antennæ exactly alike in the two sexes, the 2 outer joints of the peduncle elongated and slender, nearly equal-sized, flagellum scarcely longer than the last peduncular joint, and composed of 5 articulations only. Anterior gnathopoda with the propodos fully as long as the 3 preceding joints combined, and oval in form, palm rather oblique and longer than the hind margin, carpal lobe scarcely extending to the palm of the propodos. Posterior gnathopoda nearly of same size as the anterior, propodos not fully as broad as in the latter, carpal lobe much narrower, and extending to the palm of the propodos. Pereiopoda rather slender and not very densely setous, the 2 anterior pairs having the meral joint but little expanded, propodal joint about the length of the latter, and somewhat longer than the carpal one, dactylus rather slender. The 2 succeeding pairs successively increasing in length, basal joint rather expanded, dactylus very slender and elongated. Last pair of pereiopoda, as usual, much longer than the preceding pairs, and of quite normal structure. The first 2 pairs of uropoda reaching about to the same transverse line, and scarcely extending beyond the basal part of the last pair. The latter nearly twice as long as the urosome, rami somewhat longer than the basal part and very narrow, lanceolate, unarmed. Telson extremely small, scarcely longer than it is broad, tip slightly emarginated. Body pellucid, whitish, with a faint yellowish tinge. Length of adult female scarcely attaining 5 mm, that of male 4 mm.

Remarks. — The present form, the type of the genus, has much the outward appearance of a *Monoculodes*, and may easily, without a closer examination, be considered as such, the more so as the last pair of uropoda, owing to their great brittleness, are generally lost in the specimens captured. The rather powerful and uniform structure of the 2 pairs of gnathopoda will however, even in this case, serve for distinguishing this form from the species of the genus *Monoculodes*.

Occurrence. — I have met with this form rather sparingly in a few places off the west coast of Norway, and recently also in the Trondhjemsfjord, in depths ranging from 50 to 100 fathoms. Boeck found a single specimen in the Christianiafjord and another at Haugesund. Out of Norway it has not yet been recorded.

Gen. 9. **Œdiceropsis,** Lilljeborg, 1865.

Body rather slender, with comparatively large coxal plates, the 4th pair of which are deeply emarginated posteriorly in their upper part, to receive the 5th pair, which are of smaller size than usual. Cephalon narrowed anteriorly, without however forming any produced frontal part. Eyes imperfectly developed, though conspicuous in the living animal, and placed, as in most other Amphipoda, on the sides of the cephalon at some distance from its anterior extremity. Antennæ very unequal, the superior ones being extremely small, whereas the inferior ones are strongly developed, with the penultimate joint of the peduncle very large, and the flagellum composed of numerous short articulations provided anteriorly (in both sexes) with rather large calceolæ. Oral parts resembling those in the genus *Monoculodes,* except that the mandibular palp is much more elongated, and the basal and masticatory lobes of the maxillipeds broader in proportion to their length. Gnathopoda rather powerful and subsimilar in structure, propodos in both pairs comparatively large and subcheliform, with the palm obliquely arched and much longer than the hind margin, carpus rather short, and forming inferiorly a comparatively small setiferous lobe of same appearance in both pairs. The 2 anterior pairs of pereiopoda very slender and much smaller than the 3 succeeding pairs, which are very fully developed and increase successively in length. Uropoda of the usual structure. Telson very small.

Remarks. — The present genus, established by Prof. Lilljeborg, is very markedly distinguished from the typical Œdiceridæ by the form of the cephalon, and by the eyes not being placed dorsally, but on each side of it. Moreover the structure of the antennæ is rather peculiar, as also the form of the 4th pair of coxal plates. Finally the 3 posterior pairs of pereiopoda increase successively in length, the last ones being thus less unlike the preceding pairs than is usual in this family. The genus comprises as yet but a single species, to be described in the sequel.

24. **Œdiceropsis brevicornis**, Lilljeborg.

(Pl. 114).

Œdiceropsis brevicornis, Lilljeborg, On the Lysianassa magellanica etc., p. 19.

Body glabrous and somewhat compressed, but without any dorsal keel. Cephalon exceeding in length the first 2 segments of mesosome combined, anterior part rather narrowed and produced in front to a very small rostral projection, lateral corners forming a short and broad lobe emarginated at the end. First pair of coxal plates rather expanded distally, and much broader than the succeeding pair, terminal edge slightly curved and densely setous; 4th pair much deeper than the corresponding segment, and very broad in their outer part, forming posteriorly, below the emargination a rather projecting narrowly-rounded lobe; 5th pair scarcely half as deep as the 4th, and having the posterior lobe obtusely truncated at the tip. Eyes rounded triangular, without any distinct lenses, pigment light red. Superior antennæ very minute and densely setous, considerably shorter than the cephalon, and scarcely reaching beyond the middle of the penultimate peduncular joint of the inferior ones, joints of the peduncle rapidly diminishing in size, flagellum somewhat shorter than the peduncle, and composed of about 10 short articulations. Inferior antennæ more than 3 times as long as the superior, and rather strongly built, basal part forming posteriorly a large globular expansion projecting beneath the cephalon, in front of the buccal area, penultimate joint of the peduncle very large and muscular, having, in addition to a few small bristles, a slender spine at the end posteriorly, last joint of the peduncle scarcely more than half as long as the penultimate one and much narrower, having on the anterior edge 3 slender spines and posteriorly at the end 2 similar ones, flagellum shorter than the peduncle and very flexible, being composed of a great number of short articulations, each bearing anteriorly a rather large calceola. Mandibular palp nearly twice as long as the mandible, with the terminal joint shorter than the middle one. Anterior gnathopoda with the propodos nearly as long as the basal joint, and regularly oval in form, palm slightly arcuate and nearly 4 times as long as the hind margin, its edge densely clothed with small spinules and bristles, carpal lobe small and densely setous, reaching to the palm of the propodos. Posterior gnathopoda of almost exactly the same structure as the anterior ones, being only a little more elongated, and having the propodos more oblong in form. The 2 anterior pairs of pereiopoda very slender and densely setous, propodal joint shorter than the carpal one, and about the length of the meral joint, dactylus very slender, and equalling the latter joint in length. The 2 succeeding pairs much larger, and provided on the edges with dense tufts of slender bristles, basal joint but little expanded, meral joint comparatively large and compressed, dactylus slender and elongated. Last pair of pereiopoda of the usual structure, having the basal joint rather expanded and the outer joints edged with tufts of small spines. Last pair of uropoda scarcely reaching beyond the others, rami longer than the basal part, narrowly lanceolate, and edged with small spinules. Telson extremely small, oval quadrangular in form, tip obtusely rounded. Body pellucid, with a tinge of pale flesh-colour. Length of adult female 11 mm.

Remarks. — This form was first described by Prof. Lilljeborg from a single specimen found at Molde, west coast of Norway. It is easely recognized from any of the other Œdiceridæ, both by its outer habitus and by several well-marked structural details. The male has not yet been observed.

Occurrence. — I have met with this pretty form rather sparingly in a few places off the west coast of Norway, as also in the Trondhjemsfjord, in depths varying from 50 to 300 fathoms. It extends northwards to the Lofoten Isles, but has never been found off the coast of Finmark. Out of Norway it has not yet been recorded.

Gen. 10. **Halimedon,** Boeck, 1870.

Syn.: Westwoodilla, Sp. Bate.

Form of body resembling that in the genus *Monoculodes*. Cephalon having the frontal part more or less produced and defined from the lateral corners by a deep sinus, rostral projection short and acute. Coxal plates of middle size, and exhibiting much the same appearance as in the said genus. Eyes distinct, placed close together above at the end of the frontal part of the cephalon. Superior antennæ rather slender and, as a rule, shorter than the inferior, flagellum of the latter in male greatly elongated. Anterior lip nearly trapezoidal in form, lateral edges obtusely angulated on the middle; posterior lip comparatively large, with the inner lobes well defined. Mandibles very strong, cutting part not distinctly dentated, molar expansion well defined, palp very slender, with the middle joint strongly curved and partly edged with short spinules. Maxillæ nearly as in *Monoculodes*. Maxillipeds comparatively poorly developed, masticatory lobes oblong in form and reaching to the end of the antepenultimate joint of the palp, the latter much smaller than in the genus *Monoculodes*. Gnathopoda subsimilar, and rather feeble in structure, propodos comparatively small and oblong oval in form, carpus rather elongated, and forming inferiorly a short setous expansion. Pereiopoda, uropoda and telson of the usual structure.

Remarks. — As stated by the Rev. Mr. Norman, the genus *Westwoodilla* of Sp. Bate is in all probability identical with the genus *Halimedon* of Boeck. But as Sp. Bate founded his genus upon a misapprehension, believing the 1st pair of pereiopoda to be the posterior gnathopoda, and as he, moreover, subsequently describes the same form, upon which the genus was founded, as an Œdiceros, the generic name *Westwoodilla* cannot properly be retained, though it certainly is much older than that proposed by Boeck. As to their outward appearance, the species of this genus bear a strong resemblance to those of the genus *Monoculodes*. They may, however, be readily recognized by the rather different structure of the gnathopoda. The genus comprises as yet 4 northern species, to be described in the sequel.

25. **Halimedon Mülleri,** Boeck.

(Pl. 115).

Halimedon Mölleri[1]) Boeck, Crust. amph. bor. & arct. p. 89.
Syn: Westwoodilla caecula, Sp. Bate.
» Westwoodilla hyalina, Sp. Bate.
« Œdiceros parvimanus, Sp. Bate.

Body moderately slender, with the segments sharply defined, and the anterior part of the body rather tumid, especially in the ovigerous female. Cephalon exceeding in length the first 3 segments of mesosome combined, frontal part considerably produced and strongly vaulted above at the tip, rostrum very short, horizontal, projecting beneath the vaulted part of the front, lateral corners of cephalon terminating with a somewhat upturned acute angle. First pair of coxal plates considerably expanded in their outer part, forming in front a broadly linguiform lobe covering over the buccal area, distal edge slightly arcuate and densely setous; the 3 succeeding pairs successively increasing in size; 4th pair quadrangular in form, and about as deep as the corresponding segment, infero-posteal corners nearly rectangular; 5th pair considerably broader than the 4th and nearly as deep. Eyes of moderate size and oval in form, placed within the strongly vaulted terminal part of the front, pigment light red. Superior antennæ in female rather slender, equalling in length the cephalon and the first 3 segments of mesosome combined, 2nd joint of the peduncle longer than the 1st and very narrow, flagellum about the length of the 2 last joints of the peduncle combined, and composed of 10 articulations; those in male more strongly built, with the flagellum considerably longer than the peduncle, and composed of 14 articulations, the 10 first of which are thickened and densely clothed with delicate sensory hairs. Inferior antennæ in female exceeding the superior by about 1/4 of their length, last joint of the peduncle longer than the penultimate one, both densely setous, flagellum not quite attaining the length of those joints combined. Same antennæ in male greatly elongated, nearly attaining the length of the whole body, joints of the peduncle nearly bare, flagellum very slender and filiform. Anterior gnathopoda rather feeble, propodos scarcely longer than the carpus, and oblong oval in form, palm evenly curved and nearly twice as long as the hind margin, carpal lobe broadly rounded and densely setous. Posterior gnathopoda a little more slender than the anterior, otherwise of much the same structure. Pereiopoda densely setous, propodos of the 2 anterior pairs about the length of the carpus and somewat dilated in the middle, nearly subfusiform in outline, and having the outer half of the anterior edge provided with dense tufts of bristles, dactylus about the length of the propodos. The 2 succeeding pairs successively increasing in length, and of usual structure. Last pair of pereiopoda exceeding half the length of the body, basal joint rounded oval, carpal and meral joints of about equal length, propodal joint a little longer. Last pair of uropoda with the rami longer than the basal part, narrowly lanceolate, and edged with small spinules. Telson oval in form, tip broadly rounded off, and provided with several small bristles. Body pellucid, whitish, with a more or less pronounced, light reddish tinge; ova in the marsupial pouch a beautiful orange-colour. Length of adult female 8 mm., of male nearly the same.

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[1]) In his great work on the northern Amphipoda Boeck himself changed the specific name *Mölleri* to *Mülleri*.

Remarks. — The Rev. Mr. Norman has recently[1]) stated, that no less than 3 supposed species established by Sp. Bate have in fact turned out to be identical with the *Halimedon Mülleri* of Boeck. He applies one of the specific names proposed by that author, viz., *parvimanus,* to the species in question. But as, indeed, 3 different names were, by a wrong apprehension, given by Sp. Bate to the very same species, and none of these names is particularly appropriate, I think it will be best to avoid them altogether and restore that given to the species by Boeck. The present form may be easily distinguished from the 3 succeeding species by the form of the cephalon, particularly the frontal part of the latter. It is the type of the genus.

Occurrence. — Off the south and west coasts of Norway this form is very commonly met with in moderate depths, from 20 to 50 fathoms, muddy bottom. It also occurs rather frequently in the Trondhjemsfjord, and extends northwards along the whole coast of Nordland and Finmark until Vadsø, though being less common here.

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[1]) Notes on British Amphipoda I. Ann. & Mag. Nat. Hist. June 1889, p. 455.

Distribution. — British Isles (Sp. Bate, Norman), Kattegat (Meinert), coast of France (Chevreux).

26. **Halimedon acutifrons,** G. O. Sars, n. sp.

(Pl. 116, fig. 1).

Form of body somewhat more slender than in the type species, otherwise very similar. Cephalon attaining the length of the first 4 segments of mesosome combined, frontal part considerably produced, and gradually tapering to a horizontally projected acute point reaching beyond the basal joint of the superior antennæ, upper face of the front but very little vaulted, lateral corners of cephalon somewhat less produced than in *H. Mülleri.* First pair of coxal plates very much expanded in their outer part; the 3 succeeding pairs somewhat narrower than in the said species, and considerably deeper than the body. Eyes oblong oval in form, placed about midway between the insertion of the superior antennæ and the tip of the rostrum, pigment light red. Superior antennæ in female scarcely attaining the length of the cephalon and the first 3 segments of mesosome combined, 2nd joint of the peduncle very slender and considerably longer than the 1st, flagellum shorter than the last 2 joints of the peduncle combined, and composed of about 10 articulations. Inferior antennæ exceeding the superior by about ¼ of their length, last joint of the peduncle scarcely longer than the penultimate one, flagellum about as in *H. Mülleri.* Gnathopoda comparatively still more feeble than in that species, propodos of the anterior ones more than twice as long as it is broad, and somewhat exceeding in length the carpus, that of the posterior ones still narrower, equalling in length the carpus, and having the palm scarcely longer than the hind margin, carpal expansion in the former broader and more projecting than in the latter. Pereiopoda somewhat more slender and less richly setous than in the type species, propodal joint of the 2 anterior pairs less distinctly dilated, dactylus in these and the 2 succeeding pairs very slender and elongated. Last pair of pereiopoda very much elongated, basal joint considerably dilated in its proximal part, carpal joint about the length of the propodal one, and each somewhat longer than the meral joint. Last pair of uropoda nearly as in *H. Mülleri.* Telson comparatively smaller and more narrowly rounded at the tip. Body very pellucid, whitish with a faint yellowish tinge; ova in the marsupial pouch rose-coloured. Length of adult female 8 mm.

Remarks. — The present new species is very nearly allied to *H. Mülleri*, though easily distinguishable by the rather different form of the frontal part of the cephalon, which gradually tapers to an acute rostrum, and does not form any pronounced tumefication at the place where the eyes are situated.

Occurrence. — I have hitherto only met with this form in a few places off the coast of Norway, thus at Apelvær, Namdal, and in the Trondhjemsfjord. It is a true deep-water form, occurring only in greater depths, ranging from 50 to 150 fathoms.

27. **Halimedon megalops**, G. O. Sars.

(Pl. 116, fig. 2).

Halimedon megalops, G. O. Sars, Oversigt af Norges Crustaceer I, p. 96, Pl. 4, fig. 9.

Body comparatively rather stout, and greatly tumefied in its anterior part. Cephalon scarcely exceeding the length of the first 3 segments of mesosome combined, frontal part horizontally produced and rather broad, being strongly vaulted anteriorly, with only a very short rostral projection jutting out from beneath its end and reaching nearly to the end of the basal joint of the superior antennæ, lateral corners of cephalon obtuse at the tip. First pair of coxal plates but little expanded distally; 4th pair somewhat deeper than the corresponding segment, and having the infero-posteal corners nearly rectangular; 5th pair rather large, though somewhat less deep than the former. Eyes of quite an unusual size, rounded in form and placed within the strongly-vaulted anterior part of the front, pigment dark red. Superior antennæ in female comparatively short, scarcely exceeding in length the cephalon and the 1st segment of mesosome combined, joints of the peduncle successively diminishing in size, flagellum a little shorter than the peduncle, and composed of 5 articulations only. Inferior antennæ exceeding the superior by about $^1/_3$ of their length, the 2 last joints of the peduncle about of equal length, flagellum nearly as long as the peduncle. Gnathopoda somewhat less feeble than in the 2 preceding species, propodos of both pairs considerably longer than the carpus, and somewhat dilated in the middle, palm in the anterior ones about twice as long as the hind margin, in the posterior ones but little longer, carpal expansion of both pairs of exactly the same appearance. Pereiopoda comparatively more strongly built than in the 2 preceding species, propodal joints of the 2 anterior pairs narrow linear, and but sparingly setous, dactylus in these pairs, and the 2 succeeding ones, scarcely exceeding in length the propodal joint. Last pair of pereiopoda of moderate length, basal joint very broad, carpal and meral joints about of equal length, propodal joint a little longer. Last pair of uropoda with the rami but little longer than the basal part, each only armed with 2 small spinules. Telson nearly as broad as it is long, and transversely truncated at the tip. Colour yellowish orange, more or less variegated with a reddish brown pigment, antennæ banded with orange. Length of adult female 6 mm.

Remarks. — The present species is easily distinguishable from the 2 preceding ones by its comparatively more robust form of body, and especially by the very broad and strongly-vaulted frontal part, as also by the unusually large eyes contained therein; finally, by the rather different colour of the body.

Occurrence. — I first detected this form at Vadsø, east Finmark, where some specimens were collected from a depth of 20 to 30 fathoms, and I have subsequently also met with it in several other places off the Finmark coast. Mr. Schneider has found it rather abundantly in the neighbourhood of Tromsø, as also in the Langfjord, south Varanger. It extends southwards along the Nordland coast to Valdersund, Namdal. Off the west and south coasts of Norway I have, on the other hand, never met with this form.

Distribution. — Greenland (Hansen).

28. **Halimedon brevicalcar** (Goës).

(Pl. 116, fig. 3).

Œdiceros brevicalcar, Goës, Crust. amph. maris Spetsb. p. 11, fig. 22.

Body rather short and stout, with broadly-rounded back. Cephalon not attaining the length of the first 3 segments of mesosome combined, frontal part but little produced and continued to an acute deflexed rostrum reaching somewhat beyond the middle of the basal joint of the superior antennæ, upper contour forming a perfectly even curve until the tip of the rostrum; lateral corners of cephalon nearly rectangular. First pair of coxal plates but very little expanded distally; 4th pair about as deep as the corresponding segment and having the infero-posteal corners not at all produced; 5th pair rather large and broad. Eyes of moderate size, rounded oval in form, and placed just in front of the insertion of the superior antennæ, pigment bright red. Superior antennæ in female not attaining the length of the cephalon and the first 2 segments of mesosome combined, joints of the peduncle successively diminishing in size, flagellum somewhat shorter than the peduncle, and composed of about 7 articulations. Inferior antennæ but little longer than the superior, last joint of the peduncle shorter than the penultimate one, flagellum about the length of those joints combined. Anterior gnathopoda with the propodos about the length of the carpus and oval in form, palm somewhat longer than the hind margin, carpal expansion rather projecting. Posterior gnathopoda somewhat more elongated, propodos oblong oval in form, with the palm scarcely longer than the hind margin, carpal expansion much less projecting than in the anterior pair. The 4 anterior pairs of pereiopoda nearly as in *H. megalops.* Last pair about half the length of the body, basal joint obpyriform in outline, meral, carpal and propodal joints nearly of equal length. Last pair of uropoda with the rami considerably longer than the basal part and very narrow. Telson somewhat more elongated than in *H. megalops*, otherwise of much the same appearance. Body pellucid, whitish, with a more or less distinct yellowish tinge, but without any pigmentary ornamentation. Length of adult female 6 mm.

Remarks. — The present form, first described by Goës as an Œdiceros, may be readily distinguished from the other species of the genus by its comparatively short and stout body, but especially by the form of the cephalon, the frontal part of which looks very like that of a typical *Monoculodes*; moreover the antennæ are less unequal in length than in the other species.

Occurrence. — I have met with this form in two places only off the Finmark coast, viz., at Vadsø and Hammerfest, in depths varying from 20 to 30 fathoms. Mr. Schneider has also found it in the neighbourhood of Tromsø, and Boeck moreover records it from Skraaven, Lofoten Isles. The statement of the latter author as to its occurrence so far south as Bohuslän, seems to me, on the other hand, to be rather questionable.

Distribution. — Arctic Ocean: Iceland (Thorell), Greenland (Hansen), Spitsbergen (Goës).

Gen. 11. **Bathymedon,** G. O. Sars, n.

Syn.: Halimedon, Boeck (part).

Form of body nearly as in the preceding genus. Cephalon with the frontal part not at all produced and forming only a small rostral projection above the base of the superior antennæ, lateral parts broadly rounded off, and partly obtecting at the sides the bases of the inferior antennæ. Coxal plates not very large, and but sparingly setous at the edges. Eyes wanting or imperfectly developed. Antennæ now slender, now rather robust, and, as a rule, not very unequal; those in male modified in the usual manner. Mandibles unusually large and strongly incrusted, having the cutting part simple, not dentated, and the molar expansion well developed, palp rather slender, with the middle joint less abruptly bent than in *Halimedon*. Maxillæ nearly as in that genus. Maxillipeds comparatively more fully developed, with the palp considerably larger. Gnathopoda rather unequal, the posterior ones being much more slender and elongated than the anterior, both pairs with the carpus rather elongated, and forming inferiorly a more or less distinct setous expansion, propodos not very large, with the palm very oblique and armed below by an unusually long and slender spine. Pereiopoda, uropoda and telson of the usual structure.

Remarks. — I have felt justified in establishing this new genus, in order to include the 2 rather anomalous species described by Boeck as *Halimedon longimanus* and *H. Saussurei*, both of which agree in some characteristics not found in the other species of *Halimedon;* thus, in the quite rudimentary condition of the visual organs, the non-produced frontal part of the cephalon, the rather unequal structure of the gnathopoda, and finally the unusually large size of the mandibles. As a 3rd species of this genus I propose to describe the *Halimedon obtusifrons* of Hansen, which, though differing rather conspicuously from the 2 above-named species as to outward appearance, yet shows some anatomical characteristics in common with them. As all 3 species are very pronounced deep-water forms, I have chosen the above generic denomination, which, at the same time, is intended to express the affinity of the genus with *Halimedon.*

29. **Bathymedon longimanus** (Boeck).

(Pl. 117).

Halimedon longimanus, Boeck, Crust. amph. bor. & arct. p. 90.

Body rather slender and somewhat compressed, with very thin and pellucid integuments. Cephalon not fully attaining the length of the first 4 segments of mesosome combined, and produced in front to a small acute rostral projection reaching about to the middle of the basal joint of the superior antennæ, lateral parts forming on each side a rather deep and broad obtuse-angled expansion, covering over the whole basal part of the inferior antennæ, its anterior edge slightly convex in the middle. First pair of coxal plates obliquely expanded, in their outer part, distal edge nearly straight; the 2 succeeding pairs rather narrow and nearly equal in size; 4th pair much larger, and about as deep as the corresponding segment, infero-posteal corners somewhat produced, though obtuse at the tip; 5th pair rather broad, with the posterior lobe somewhat projecting. Eyes inconspicuous, and replaced by a chalky white pigment, irregularly distributed within the cephalon and partly extending within the anterior part of the mesosome. Superior antennæ in female rather slender, exceeding in length the cephalon and the first 3 segments of mesosome combined, 2nd joint of the peduncle somewhat longer than the 1st and very narrow, flagellum about the length of the 2 last peduncular joints, and composed of about 10 articulations; those in male having the flagellum more strongly developed, and divided into numerous (about 22) articulations densely clothed with sensory hairs. Inferior antennæ in female but little longer than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum about the length of those joints combined; same antennæ in male very much elongated, attaining the length of the whole body, flagellum slender and filiform. Anterior gnathopoda with the propodos scarcely as long as the carpus, and oval in form, palm longer than the hind margin, and defined from the same by a slight angle armed with a long and slender spine, carpal expansion short and broad. Posterior gnathopoda much more slender than the anterior, carpus very much elongated and narrow, scarcely at all expanded below, propodos oblong oval, with the palm very oblique and more than twice as long as the hind margin, from which it is defined by an obtuse angle bearing a long and slender spine. Pereiopoda moderately slender, propodal joint of the 2 anterior pairs fully as long as the carpal one, and provided anteriorly with several tufts of slender bristles, dactylus rather elongated; the 2 succeeding pairs successively increasing in length, basal joint much larger in the former than in the latter pair, dactylus smaller than in the 2 anterior pairs. Last pair of pereiopoda moderately elongated, basal joint rather large, oblong obpyriform in outline, carpal joint much shorter than the meral one, propodal joint nearly twice as long as the former. Last pair of uropoda not very much elongated, basal part somewhat dilated, rami a little longer than the latter and edged with short spinules. Telson very small and rather broad at the base, its breadth being even greater than the length, tip slightly insinuated. Colour uniformly pale yellowish; ova in the marsupial pouch likewise yellowish of colour. Length of adult female 6 mm., of male about the same.

Remarks. — The present form may be regarded as the type of the genus *Bathymedon.* It is easily distinguish from any of the Œdiceridæ described above by the absolute want of true eyes, instead of which there are only some irregular patches of a chalky white pigment. From the 2 other species of the genus, it is chiefly distinguished by the structure of the gnathopoda and pereiopoda, as also by the form of the cephalon.

Occurrence. — In greater depths, from 50 to 200 fathoms, this form is rather abundantly found off the whole south and west coasts of Norway, as also in the Trondhjemsfjord. It extends northwards to the Lofoten Isles, but would seem to be wholly absent off the coast of Finmark. Out of Norway it has not yet been recorded.

30. **Bathymedon Saussurei** (Boeck).

(Pl. 118, fig. 1).

Halimedon Saussurei, Boeck, Crust. amph. bor. & arct. p. 90.

In outward appearance very like the preceding species, though perhaps somewhat more slender of form. Cephalon but little exceeding in length the first 3 segments of mesosome combined, rostral projection somewhat more produced than in *B. longimanus*, reaching a little beyond the middle of the basal joint of the superior antennæ, lateral lobes not so deep as in that species and nearly right-angled, their anterior edges perfectly straight. First pair of coxal plates rather expanded in their outer part, distal edge arched; 4th pair rather large and deeper than the corresponding segment, distal edge strongly curved in the middle, infero-posteal corners nearly rectangular. Eyes inconspicuous, and replaced by an irregular patch of whitish pigment, which however does not extend into the anterior part of the mesosome. Antennæ in female rather slender, the superior ones attaining the length of the cephalon and the first 5 segments of mesosome combined, 2nd joint of the peduncle much longer than the 1st, flagellum attaining the length of the peduncle, and composed of about 14 articulations. Inferior antennæ scarcely as long as the superior, the 2 last joints of the peduncle nearly equal-sized, flagellum about the length of those joints combined. Anterior gnathopoda with the propodos about the length of the carpus and oblong oval in form, palm scarcely longer than the hind margin, carpal expansion somewhat produced anteriorly and narrowly rounded at the tip. Posterior gnathopoda extremely slender and feeble in structure, propodos nearly linear in form and exceeding in length the 3 preceding joints combined, palm short and imperfectly defined, carpal expansion nearly obsolete. The 2 anterior pairs of pereiopoda of the usual structure, propodal joint shorter than the carpal one, and having at the tip a dense brush of bristles, dactylus long and slender. The 2 succeeding pairs very unequal in length, the 4th pair being nearly twice as long as the 3rd, with the propodal joint very slender and elongated, dactylus in both pairs comparatively much more elongated than in *B. longimanus*. Last pair of pereiopoda extremely slender, and of quite an unusual length, nearly equalling that of the whole body, basal joint oval in form, carpal joint greatly elongated, about twice as long as the meral one, and also somewhat longer than the propodal joint. Last pair of uropoda rather slender and elongated, though scarcely projecting beyond the 2 other pairs, rami shorter than the basal part, the inner one armed with a dense row of small spinules inside. Telson small, rounded quadrangular in form, about as broad as it is long, tip slightly insinuated. Colour pale yellowish, with indistinct whitish bands across the segments of mesosome. Length of adult female scarcely exceeding 5 mm.

Remarks. — Though, as regards the general appearance, very like the preceding species, this form is, on a closer examination, easily distinguishable by several well-marked characteristics. Thus the structure of the posterior gnathopoda is rather peculiar, from the extremely slender form of the propodos, and for this cause, indeed, the specific name of *longimanus* would have been much more properly applied to this species than to the preceding one. Moreover, the 2 posterior pairs of pereiopoda are much more elongated than in that species, the last pair especially being highly remarkable for their excessive length; but as these legs are very brittle, it is rather unusual to get a specimen with them uninjured.

Occurrence. — This form would seem to be much less common than *B. longimanus.* I have collected it in a few places off the west coast of Norway in company with the former, and have recently also found it in the Trondhjemsfjord. Boeck records it moreover from the Christianiafjord. As is the case with *B. longimanus*, it is a true deep-water form, only occurring in greater depths, ranging from 50 to 300 fathoms. Out of Norway it has not yet been recorded.

31. **Bathymedon obtusifrons** (Hansen).

(Pl. 118, fig. 2).

Halimedon obtusifrons, Hansen, Malacostraca Groenlandiæ, p. 116, Pl. V, fig. 1.

Syn.: Halimedon Saussurei, Schneider (not Boeck).

Body much more strongly built than in the 2 preceding species, and rather tumid in its anterior part. Cephalon scarcely exceeding in length the first 2 segments of mesosome combined, rostral projection very short and blunted at the tip, lateral lobes rather deep and obtusely rounded. First pair of coxal plates but very little expanded distally, and scarcely broader than the succeeding pair; 4th pair about as deep as the corresponding segment, and having the infero-posteal corners somewhat produced, though obtuse at the tip. Eyes quite visible in the living animal, though without any distinct visual elements, consisting merely of a rounded, light red pigmentary mass placed dorsally somewhat behind the rostral projection. Antennæ comparatively short and stout, with fascicles of diverging bristles at the end of the joints; the superior ones in female scarcely more than twice as long as the cephalon, 1st joint of the peduncle nearly as long as the other 2 combined, flagellum longer than the peduncle, and composed of about 8 articulations. Inferior antennæ a little longer than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum about the length of those joints combined. Gnathopoda somewhat resembling in structure those in *B. longimanus;* the anterior ones having, however, the carpus less elongated, and produced inferiorly to a rather projecting setous expansion narrowly rounded at the tip, propodos longer than the carpus, and rather expanded distally. Posterior gnathopoda much larger than the anterior, carpus produced inferiorly in a manner similar to the latter, propodos oblong oval in form, exceeding the carpus in length, and having the palm more than twice as long as the hind margin, from which it is defined by a slight angle bearing an unusually long and slender spine pointing anteriorly, dactylus very long and curved, serrated on the inner edge. Pereiopoda much more strongly built than in the 2 preceding species, and rather densely setous; propodal joint of the 2 anterior pairs about the length of the carpal one, dactylus of moderate length, compressed lanceolate. The 2 succeeding pairs not very unequal in length, and having the dactylus comparatively short. Last pair of pereiopoda but little exceeding half the length of the body, basal joint rather large and oval in form, carpal joint shorter than the meral one, which latter about equals in length the propodal joint. Last pair of uropoda with the rami nearly twice as long as the basal part, and narrowly lanceolate, each having a few slender marginal spinules. Telson comparatively larger than in the 2 preceding species, and somewhat longer than it is broad at the base, outer part slightly narrowed, and transversely truncated at the tip. Body pellucid, whitish, with a faint yellowish tinge; ova in the marsupial pouch orange-coloured. Length of adult female 5 mm.

Remarks. — I have formerly erroneously determined this form as *Halimedon Saussurei* Boeck, and it was also described under this name by Mr. Schneider in his admirable memoir on the northern Œdiceridæ. It is, however. very different from that species, though apparently congeneric. Dr. Hansen subsequently described the same form from Greenland as a new species of *Halimedon*, proposing for it the specific name of *obtusifrons,* which thus ought to be retained for the species. From the 2 preceding species this form is at once distinguished by its much more robust form of body and the more strongly built antennæ and pereiopoda, moreover by the short and blunted rostral projection and the rather conspicuous eyes.

Occurrence. — I detected this form many years ago in the Varanger-fjord, at Bugø, where a few specimens were collected from a depth of about

100 fathoms. Mr. Schneider found it subsequently also in the neighbourhood of Tromsø; but farther south it has not yet been met with.

Distribution. — Greenland (Hansen).

Gen. 12. **Aceros**, Boeck, 1860.

Body comparatively slender, with rather small coxal plates, the 1st pair of which are considerably expanded distally. Cephalon truncated in front, without any distinct rostral projection. Eyes inconspicuous, and replaced by 2 small distant patches of pigment. Antennæ slender, the superior ones much the longer, and having the peduncle greatly prolonged, whereas the flagellum is extremely small. Oral parts resembling those in the genus *Halimedon*, the mandibles being, however, comparatively still more strongly built, and the palp of the maxillipeds larger. Gnathopoda rather slender and subsimilar in structure, carpus in both pairs elongated, and produced inferiorly to a narrow setous lobe, propodos not very strong, subcheliform. The 2 anterior pairs of pereiopoda somewhat larger than the 2 succeeding ones, which latter are nearly equal both as to size and structure. Last pair of pereiopoda of the usual slender and elongated form. Uropoda and telson likewise of normal appearance.

Remarks. — The present genus was established by Boeck as early as in the year 1860, to include the form briefly described by my late father as *Leucothoë phyllonyx,* and subsequently recorded by Bruzelius under the name of *Œdiceros obtusus.* The generic denomination refers to the absolute want of any frontal projection, whereby this genus, indeed, stands quite alone among the Œdiceridæ. In the structure of the oral parts and that of the gnathopoda, it seems to resemble the genus *Halimedon*, from which however it differs in the structure of the antennæ and pereiopoda. Besides the typical species described below, the *Œdiceros Novæ-Zealandiæ* of Dana would seem to belong to this genus.

32. **Aceros phyllonyx** (M. Sars).

(Pl. 119, Pl. 120 fig. 1).

Leucothoë phyllonyx, M. Sars, Christ. Vid. Selsk. Forhandl. 1858, p. 148.

Syn.: Œdiceros obtusus, Bruzelius.

Body rather slender and elongated, but considerably tumefied in its anterior part, with all the segments sharply defined. Cephalon about the length of the first 3 segments of mesosome combined and very tumid, forming on each side a broadly rounded, umboniform prominence, front transversely truncated, without the slightest trace of any rostral projection, lateral lobes of cephalon broadly rounded. First pair of coxal plates expanded in their outer part to a narrow linguiform lobe stretching along the lower side of the cephalon and densely fringed with setæ; 2nd pair rather narrow; 3rd pair somewhat broader but less deep, and having the distal edge distinctly insinuated; 4th pair obliquely quadrangular in form, and scarcely as deep as the corresponding segment; 5th pair more than twice as broad as they are deep; 6th pair likewise unusually broad, and narrow elliptical in form. Eyes replaced by 2 small patches of a whitish pigment, only visible in the living animal, and situated each within the lateral walls of the cephalon near their anterior edges. Superior antennæ in female very slender and about attaining half the length of the body, 2nd joint of the peduncle extremely elongated and narrow, nearly twice as long as the first, and fringed on both edges with a row of slender setæ, flagellum very small, scarcely twice as long as the last peduncular joint, and composed of about 11 short articulations; flagellum of the (young) male somewhat larger, 3 times as long as the last joint of the peduncle, and having some of the joints thickened. Inferior antennæ in female much shorter than the superior, the 2 outer joints of the peduncle of nearly equal length, and edged with slender setæ, flagellum about the length of those joints combined; flagellum of the (young) male considerably more elongated and divided into a great number of short articulations. Anterior gnathopoda with the propodos oblong oval in form, and somewhat shorter than the carpus, palm slightly curved and longer than the hind margin, carpal lobe triangular, pointing inferiorly. Posterior gnathopoda somewhat more slender than the anterior ones, propodos nearly as long as the carpus and of a form similar to that of the anterior pair, carpal lobe very narrow, pointing anteriorly, and reaching beyond the hind margin of the propodos. The 2 anterior pairs of pereiopoda rather strong, with the meral joint very large, fully as long as the basal one, and fringed along the anterior edge with a dense row of delicate ciliated setæ, along the posterior edge with dense tufts of bristles, propodal and carpal joints about of equal length, dactylus shorter than the propodal joint and compressed, foliaceous. The 2 succeeding pairs with the basal joint rather large and expanded, meral joint of usual appearance, dactylus of same structure as in the 2 anterior pairs, but somewhat more elongated. Last pair of pereiopoda considerably exceeding half the length of the body, basal joint large, elongated obpyriform in outline, carpal joint much shorter than the propodal one, and scarcely attaining the length of the meral joint. The 2 anterior pairs of uropoda densely edged with slender spines; last pair scarcely reaching beyond them, rami about the length of the basal part, and only edged with very small denticles. Telson regularly quadrangular in form, about as long as it is broad, terminal edge straight. Body pellucid, whitish, with a faint tinge of flesh-colour. Length of adult female 15 mm.

Remarks. — As above mentioned, this form was first described by my late father, Prof. M. Sars, as *Leucothoë phyllonyx.* Subsequently the same form was found by Bruzelius, and described by him under another name, viz., *Œdiceros obtusus*, which latter denomination was also adopted by Goës, and likewise, at first, by Boeck. Subsequently, however, the last-named author justly restored the much older specific name proposed for this form by my late father, and made it the type of a new genus. From the other Œdiceridæ this form is at once distinguished, among other characteristics, by the absolute want of any frontal projection.

Occurrence. — The present form is found along the whole coast of Norway, from the Christianiafjord to Vadsø, in greater depths, ranging from 50 to 400 fathoms, occurring in some places even in great abundance. But more generally only young specimens are met with during the summer months. Mr. Schneider, who has recently published a most interesting paper on the biological relations of the Amphipoda, therefore opines, that this form has only an annual existence, and that its breeding is restricted to the early spring, an opinion that is quite confirmed by my own observations.

Distribution. — Arctic Ocean widely distributed: Greenland (Hansen), Iceland (Norw. North Atl. Exped.), Spitsbergen (Goës), Franz Josephs Land (Heller), the Barents Sea (Hoek), the Murman coast (Jarzynsky), the Kara Sea (Hansen), the Siberian Polar Sea (Stuxberg); Bohuslän (Bruzelius); North Sea 60 M. north of Peterhead (Metzger).

Gen. 13. **Aceroides**[1], G. O. Sars, n.

Form of body somewhat less elongated than in the preceding genus. Cephalon with a small but distinct rostral projection in front. Coxal plates very small, the 1st pair scarcely expanded distally. Eyes inconspicuous. Superior antennæ in female longer than the inferior ones, with comparatively short peduncle, and very fully-developed flagellum. Anterior lip rather broad, and nearly transversely truncated at the tip. Mandibles less strong than in the preceding genus, with the palp smaller. Maxillæ and maxillipeds nearly as in that genus. Gnathopoda slender, and of much the same appearance as in *Aceros*. The 2 anterior pairs of pereiopoda very largely developed, with the joints, in parts, much expanded, and the dactylus very large and foliaceous. The 2 succeeding pairs much smaller, and rather feeble in structure, with the basal joint scarcely expanded. Last pair of pereiopoda well developed, and of the usual structure. Uropoda and telson normal.

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[1] As a genus *Aceropsis* has been named, without however any diagnosis, by Dr. Stuxberg, I have thought it right to change the generic name inserted in the plate.

Remarks. — The present new genus is established to include the anomalous form described by the author, at an earlier date, as *Halicreion latipes*. The affinity of the latter form to the genus *Halicreion* of Boeck is, however, very slight, and it comes in, reality, much nearer to the genus *Aceros*, to which it also was referred by Dr. Hansen under another specific name. From that genus, the present one is chiefly distinguished by the cephalon having a distinct though small rostral projection, moreover by the very different structure of the superior antennæ, the less strongly developed mandibles, and finally by the structure of the pereiopoda, the 2 anterior pairs of which are highly remarkable by their unusualy robust form. The genus comprises as yet but a single species, to be described in the sequel.

33. **Aceroides latipes**, G. O. Sars.

(Pl. 120, fig 2).

Halicreion latipes, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 97, Pl. 4, fig. 10.
Syn.: Œdiceros obtusus, alia forma, Goës.
,, Aceros distingvendus, Hansen.

Body not very slender, and less tumid than in *Aceros phyllonyx*, with the anterior segments of mesosome rather short. Cephalon about the length of the first 3 segments of mesosome combined, upper face slightly vaulted, rostral projection very small, but acute, lateral lobes of cephalon rather broad, and somewhat emarginated at the tip. First pair of coxal plates obliquely quadrangular in form, and scarcely at all expanded distally; 2nd pair rather small, and somewhat narrowed distally; 3rd pair nearly as broad as the 2 preceding pairs combined, and somewhat emarginated at the tip; 4th pair much lower than the corresponding segment, and but little differing in size and form from the 3rd; 5th pair more than twice as broad as they are deep, and having the posterior lobe larger than the anterior. Eyes wholly absent. Superior antennæ in female about the length of the cephalon and the first 5 segments of mesosome combined, 1st joint of the peduncle fully as long as the other 2 combined, flagellum very fully developed, and nearly twice as long as the peduncle, being composed of about 12 articulations, each having at the tip 2 very long and slender setæ. Inferior antennæ in female much shorter than the superior, with the basal part rather thick, last joint of the peduncle not attaining the length of the penultimate one, flagellum about the length of those joints combined. Anterior gnathopoda with the propodos much longer than the carpus, oblong oval in form, and gradually expanded to about the middle, palm somewhat arched and about the length of the hind margin, carpal lobe rather large and pointing obliquely forwards. Posterior gnathopoda a little more slender than the anterior, propodos more elongated, and nearly as long as the 3 preceding joints combined, its palm shorter than the hind margin, carpal lobe very narrow, and scarcely extending to the palm of the propodos. The 2 anterior pairs of pereiopoda very large and powerfully developed, meral joint much expanded distally, and having outside an obliquely curved ridge, edged with a dense row of strong setæ, carpal joint short and broad, nearly heart-shaped, forming posteriorly a rounded expansion, edged with strong spiniform setæ, propodal joint gradually expanded distally, and forming in front of the insertion of the dactylus an obtusely rounded expansion edged with fascicles of slender bristles, dactylus very large and foliaceous. The 2 succeeding pairs much smaller, and rather feeble, subequal both in size and structure, with the basal joint nearly linear in form and the dactylus rather slender. Last pair of pereiopoda equalling about $^3/_4$ of the length of the body, basal joint rather large and oval in form, carpal joint much shorter than the meral one. Last pair of uropoda with the rami longer than the basal part, and narrowly lanceolate in form, each edged with a few slender spinules. Telson quadrangular in form, scarcely longer than it is broad, and transversely truncated at the tip. Colour in the living state of the animal not yet stated. Length of an apparently young female specimen 5 mm.

Remarks. — There cannot, I think, be any doubt that the form here described is identical with the *Aceros distingvendus* of Hansen, which latter species is considered by that author to be the supposed variety recorded by Goës as *Œdiceros obtusus*, «alia forma». The very peculiar development of the 2 anterior pairs of pereiopoda, in connexion with the structure of the superior antennæ, will suffice to distinguish this form from any of the other Œdiceridæ.

Occurrence. — I have hitherto only met with a single specimen of this remarkable form, the one here described and figured, apparently a young female specimen. It was collected, many years ago, in the Varangerfjord from a depth of 80—100 fathoms.

Distribution. — Spitsbergen (Goës), the Kara Sea (Hansen), Greenland (Hansen).

Fam. 11. Paramphithoidæ.

Body more or less slender, with well-developed coxal plates, the 3 posterior pairs of which are much smaller than the anterior ones. Cephalon produced in front to a more or less projecting rostrum. Eyes normal, placed on each side of the cephalon. Antennæ generally very slender, with many-jointed flagella, the superior ones longer than the inferior and without any accessory appendage. Anterior lip lamellar and distinctly bilobed at the tip; posterior lip with the inner lobes scarcely projecting. Mandibles of moderate size, cutting edge coarsely dentated, that of the left mandible having a secondary dentated lamella, molar expansion more or less developed, palp very large, with the last joint falciform curved. Maxillæ of the usual structure, basal lobe of 1st pair rather small. Maxillipeds with the masticatory lobes comparatively small and armed with slender setiform spines, palp rather elongated. Gnathopoda more or less powerful, subcheliform, and of similar structure. Pereiopoda normally developed, the 3 posterior pairs of similar structure, with the basal joint laminarly expanded. Branchial lamellæ simple and rather small; incubatory lamellæ large. Last pair of uropoda with short basal part and narrow lanceolate dentated rami, the outer of which is much shorter than the inner. Telson very small, unarmed, hollowed dorsally, tip not incised. Sexual difference very slight.

Remarks. — The present family is chiefly characterised by the slender and elongated superior antennæ, the lamellar bilobed anterior lip, the comparatively small and narrow masticatory lobes of the maxillipeds, finally by the structure of the last pair of uropoda and that of the telson. In their external appearance some of the forms bear a considerable resemblance to the *Atylidæ*, as defined by Boeck, and 2 of the species described below as belonging to the present family, were, indeed, referred by Boeck to his genus *Amphithopsis*. The family was not adopted by Boeck, who referred the type genus *Paramphithoë* to the *Œdiceridæ*, with which it only shows a very remote affinity. In the restriction here adopted, the family comprises 4 genera (to be described in the sequel), one of which is now for the first time established.

Gen. 1. **Pleustes,** Sp. Bate, 1858.

Syn.: Paramphithoë, Boeck (part).

Body robust, angular in transverse section, with strongly incrusted integuments, and partly armed with obtuse prominences. Cephalon produced in front to a very large, somewhat flattened rostrum, postantennal corners not projecting. Anterior pairs of coxal plates large and deep, 4th pair the largest and emarginated in their upper part posteriorly. Antennæ rather slender though not much elongated. Anterior lip with the lobes nearly equal and covered with fine hairs. Mandibles having the molar expansion imperfectly developed, palp of moderate length. First pair of maxillæ with the masticatory lobe well developed, and armed with elongated spines denticulated on the edge; 2nd pair having the outer lobe much narrower than the inner. Maxillipeds with the masticatory lobes rather narrow, and scarcely reaching beyond the 1st joint of the palp, the latter elongated, with the last joint simple, and the dactylus comparatively short. Gnathopoda very powerful, propodos large and oval in form, having the palm very oblique and the hind margin armed with tufts of spines, carpus short but produced inferiorly to a narrow linguiform lobe. Pereiopoda not very strong, and scarcely increasing in length posteriorly. Telson broadly rounded at the tip.

Remarks. — This genus was established by Sp. Bate as early as in the year 1858 to include an arctic species *P. tuberculatus,* which is nearly allied to *P. panoplus* Kröyer, though apparently distinct. Boeck combined the 2 genera *Pleustes* and *Paramphithoë*, adopting at first the latter generic name, and subsequently the former, which is the older one. In my opinion, however, these 2 genera ought to be kept apart, differing, as they do, both in the general external appearance, and also in some anatomical characteristics of apparently generic value. In addition to the 2 arctic forms mentioned above, Boeck describes a supposed new species as *P. parvus*; but I am disposed to believe, that this form is only founded on young specimens of *P. panoplus*, in which the strong tuberculation of the body is far less distinct than in adult specimens. A third, evidently distinct species has finally been described by the Rev. Mr. Stebbing from the Challenger Expedition as *P. abyssorum.*

1. **Pleustes panoplus** (Kröyer).

(Pl. 121).

Amphithoë panopla, Kröyer, Grønlands Amphipoder. Kgl. Danske Vid. Selsk. Afh. 1838, p. 270, Pl. 2, fig. 9.

Syn.: Paramphithoë panopla, Bruzelius.

Body of very compact form and rather broad, upper face roof-like, with a distinct dorsal keel extending throughout the whole mesosome and metasome, lower edges of the segments of mesosome forming on each side a likewise distinct lateral keel. The 2 anterior segments of metasome produced on each side, near the dorsal face, to a rather large posteriorly pointing digitiform projection; last segment of metasome and 1st of urosome having on each side a much smaller tuberculiform prominence. Cephalon somewhat flattened above, and produced in front to a very large, horizontally-projected rostrum, slightly hollowed dorsally and obtuse at the tip; lateral corners nearly rectangular. Anterior pairs of coxal plates more than twice as deep as the body; 1st pair partly covering the sides of the cephalon, and extending in front nearly to the lateral corners of the latter, thus completely concealing the buccal area, their outer part slightly expanded, with the distal edge evenly curved; the 2 succeeding pairs oblong quadrangular in form; 4th pair produced below the posterior emargination to an acute projection; 5th pair scarcely half as deep as the former and, like the succeeding pair, having the posterior lobe biangular. Last pair of epimeral plates of metasome acutely produced at the lateral corners. Eyes rather small, rounded oval in form, and somewhat prominent, pigment dark red. Superior antennæ scarcely exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum scarcely 3 times as long as the peduncle, and composed of 30—40 articulations. Inferior antennæ considerably shorter than the superior, the 2 last joints of the peduncle nearly equal-sized, flagellum about the length of the peduncle. Anterior gnathopoda with the propodos much longer than the 3 preceding joints combined, and oblong oval in form, palm a little longer than the hind margin, which has 3 transverse rows of spines, carpal lobe rather small. Posterior gnathopoda somewhat more powerful than the anterior ones, propodos considerably more dilated in its proximal part, and having the palm comparatively shorter, carpal lobe more projecting. Pereiopoda nearly of equal length, basal joint of the 3 posterior pairs oblong quadrangular in form. Last pair of uropoda not very much elongated, outer ramus exceeding half the length of the inner. Telson constricted at the base, outer part broadly rounded, unarmed, upper face with a triangular prominence near the base. Colour very variable, now very dark, nearly black, now whitish or variegated with irregular brownish shadings. Length of adult female reaching 18 mm.

Remarks. — This characteristic form was first described by Kröyer as *Amphithoë panopla*, and subsequently referred by Bruzelius to his genus *Paramphithoë*. It is nearly allied to *P. tuberculatus* of Sp. Bate, but differs in the far less strongly tuberculated body, and, according to the drawing given by that author, also in the form of the rostrum. It may be regarded as the type of the present genus.

Occurrence. — In the arctic region of Norway this form is everywhere frequently met with in moderate depths, 10—30 fathoms, among algæ. It extends southwards along the Nordland coast to the Trondhjemsfjord, and is also occasionally met with off the west coast of Norway, as far south as Bergen, but has not yet been recorded from the south coast.

Distribution. — Arctic Ocean, widely distributed; Greenland (Kröyer), Atlantic coast of North America (Packard), Labrador (Smith), Spitsbergen (Goës), Iceland (Torell), the Murman Coast (Jarzynsky), the Kara Sea (Hansen), the Siberian Polar Sea (Stuxberg).

Gen. 2. Paramphithoë, Bruzelius, 1859.

Syn.: Pleustes, Boeck (part.).

Body, as a rule, much more slender than in the preceding genus and having the integuments far less strongly incrusted. Cephalon more or less produced in front, above the base of the superior antennæ, postantennal corners generally exserted to an acute, anteriorly-curving projection. Coxal plates comparatively smaller than in *Pleustes.* Superior antennæ in most of the species very slender and elongated, and much longer than the inferior ones. Anterior lip somewhat unequally bilobed, having in the middle a narrow oblique incision. Mandibles with the molar expansion imperfectly developed, palp exceedingly large, with the last joint falciform curved. Maxillæ nearly as in the preceding genus. Maxillipeds with the palp comparatively more slender, and having the last joint attenuated distally, dactylus nearly straight, spiniform. Gnathopoda, as a rule, far less powerful than in the above genus, and somewhat differing in structure in the different species. Pereiopoda more or less elongated. Last pair of uropoda of a similar structure to those in *Pleustes,* though generally more slender. Telson comparatively small and navicular in form, being deeply hollowed above, with a projecting keel along the lower face.

Remarks. — In the restriction here adopted, this genus is chiefly distinguished from the preceding one by the far less robust form of the body, the thin and pellucid integuments, the large size of the mandibular palp, the less powerful structure of the gnathopoda, and finally by the peculiar form of the telson. It comprises 6 northern species (to be described in the sequel), one of which is now for the first time established. —

2. **Paramphithoë pulchella** (Kröyer).

(Pl. 122, fig. 1.).

Amphithoë pulchella, Kröyer, Gaimard's Voyage en Scandinavie, Zoologie, Pl. 10, fig, 2.

Syn.: Pleustes pulchellus, Boeck (the discription, but not the figures).

Body very slender, and somewhat compressed, with the 3 posterior segments of mesosome (also more rarely one or more of the preceding ones) and the first 2 segments of metasome produced dorsally to compressed, posteriorly-pointing, acute projections; last segment of metasome with a somewhat upturned lamellar expansion at the end dorsally. Cephalon about the length of the first 2 segments of mesosome combined, and produced in front to a moderately large and rather broad rostral projection, blunt at the tip; lateral corners rectangular, postantennal ones exserted to a rather projecting spiniform process. Coxal plates not very large; 1st pair tapering distally to a blunt point, and having posteriorly, at a short distance from the tip, 3 small serrations; 2nd pair more bluntly rounded at the tip, and exhibiting 4 serrations posteriorly; 4th pair but little deeper than the corresponding segment, posterior projection acutely produced, hind margin below the latter straight and very oblique; 5th pair more than twice as broad as they are deep, posterior lobe obtusely truncated at the tip. Last pair of epimeral plates of metasome produced at the lateral corners to a spiniform, slightly upturned projection, posterior edge straight and very finely serrulated. Eyes of moderate size, irregular oval in form, pigment dark red. Superior antennæ exceedingly elongated, nearly attaining the length of the whole body, 1st joint of the peduncle about the length of the other 2 combined, flagellum 4 to 5 times as long as the peduncle, and composed of a great number of articulations, the 1st of which is by far the largest. Inferior antennæ scarcely half as long as the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum about twice as long as the peduncle. Gnathopoda comparatively feeble in structure, the posterior ones a little stronger than the anterior, carpus in both pairs rather elongated, and but very slightly expanded at the end inferiorly, propodos about the length of the 2 preceding joints combined, and oblong oval in form, gradually widening, somewhat, distally, palm shorter than the hind margin, and only defined below by a very slight, obtuse angle, its edge smooth, having only, somewhat above the middle, a small dentiform projection, hind margin provided with from 5 to 6 transverse rows of small spines, besides a number of slender hairs. Pereiopoda rather elongated, but comparatively strongly built, and densely edged with tufts of small spines, basal joint of the 3 posterior pairs oblong oval in form, with the posterior edge slightly serrulated, dactylus in all pairs strong and curved. Last pair of uropoda rather slender, outer ramus exceeding half the length of the inner. Telson very small, viewed from above, oval in form, with a small dentiform projection on each side near the tip. Body whitish, semipellucid, and more or less densely mottled with a dark brownish pigment. Length of adult female reaching 17 mm.

Remarks. — There cannot be any doubt that the above described form is the true Krøyerian species. Through the kindness of Dr. Hansen, I have had an opportunity of examining the Greenlandic specimens in the Museum at

Copenhagen, determined and arranged by Kröyer, and find no essential difference whatever, except that in a few of the specimens some of the anterior segments of the mesosome appear slightly carinated, with and indication of compressed projections similar to those on the posterior ones. Also in a few of the Norwegian specimens, I have observed, at least on the 4th segment of the mesosome, a distinctly-developed though rather small dorsal projection, and it would thus seem that under certain circumstances, some variation as to the extension of the dorsal carina can take place in this species. The form described by the author at an earlier date from the Norwegian North Atlantic Expedition as *P. euacantha,* in which all the segments of the mesosome are elevated to compressed dorsal processes, I am therefore now much inclined to regard, in accordance with the opinion set forth by Dr. Hansen, as only an excessively developed variety of the present species. As pointed out by the last named author, only the description given by Boeck applies to the form in question, whereas all the figures reproduced in his great work are evidently referable to the following nearly allied species, to which Dr. Hansen has therefore given the name of *P. Boeckii.*

Occurrence. I have met with this form rather abundantly in several places off the west coast of Norway, as also in the Trondhjemsfjord, in greater depths ranging from 80 to 150 fathoms, especially in the region of the deep-sea corals. It extends northwards along the Nordland coast to Finmark, where I have collected it pretty frequently at Hammerfest.

Distribution. — Greenland (Kröyer), Iceland (Torell), Spitsbergen (Goës), coast of Bohuslän (Bruzelius).

3. **Paramphithoë Boeckii**, Hansen.

(Pl. 122, fig. 2.)

Paramphithoë Boeckii, Hansen, Malacostraca marina Grönlandiæ occidentalis, p. 121, Pl. 5, fig 3.

Syn.: Pleustes pulchellus, Boeck, (the figures, but not the description).

Body of much the same form as that in the preceding species, though perhaps somewhat more tumid in its anterior part, especially in ovigerous female specimens. Last segment of the mesosome only, and the first 2 segments of metasome elevated to compressed, recurved, dorsal projections, the other segments without any trace of processes. Cephalon considerably exceeding in length the first 2 segments of mesosome combined, and distinctly carinated dorsally, front produced to a rather large hooded rostrum reaching about to the middle of the basal joint of the superior antennæ, lateral corners narrowly rounded, postantennal ones but slightly produced. Coxal plates without any serrations; 1st pair scarcely tapering distally, tip rounded; 4th pair with the posterior projection less produced than in the preceding species, tip more broadly rounded. Last pair of epimeral plates of metasome rather produced at the lateral corners, without however forming any distinct spiniform projection, posterior edge smooth, and slightly curved in the middle. Eyes very large, and rounded triangular in form. Antennæ nearly as in the preceding species, except that the 1st joint of the flagellum of the superior ones is somewhat shorter. Gnathopoda of a similar structure to those in that species, though perhaps somewhat less slender, with the propodos more regularly oblong oval in form. Pereiopoda comparatively less robust, basal joint of the 3 posterior pairs oval in form, with the hind margin smooth. Last pair of uropoda with the outer ramus but little exceeding half the length of the inner, marginal spines in both rather coarse. Telson comparatively narrow, about twice as long as it is broad, and gradually tapering distally, tip narrowly truncated. Colour in the living state of the animal not yet stated. Length of adult ovigerous female scarcely exceeding 8 mm.

Remarks. — As above stated, Dr. Hansen was the first to point out, that the figures given by Boeck in his great work, and referred to his *Pleustes pulchellus,* do not agree with the description, and belong to the present species, for which he has proposed the above specific name. Through the kindness of that naturalist I have been enabled to examine this species, and find it perfectly distinct from, though nearly allied to *P. pulchella.* From the latter it is easily distinguishable, not only by its much smaller size, but also by several well-marked structural details, such as the distinctly-carinated and greatly-produced cephalon, the presence of only 3 dorsal projections, the form of the last pair of epimeral plates of metasome, and finally, the shape of the telson.

Occurrence. — It may be very questionable, whether this form in reality belongs to the Fauna of Norway. I have never myself met with it, and on a close revision of the very vast material of *P. pulchella,* collected off our coast at different times and in different localities, not even a single specimen of this form could be detected. It would therefore seem most probable, that the figures given by Boeck have been drawn from Greenlandic specimens.

Distribution — Greenland (Hansen).

4. **Paramphithoë bicuspis** (Kröyer).

(Pl. 123, fig. 1).

Amphithoë bicuspis, Kröyer, Grønlands Amphipoder; Danske Vid. Selsk. Afh. VIII, p. 273, Pl. 2, fig. 10.

Body rather slender, with only 2 comparatively small dorsal projections issuing from the 2 anterior segments of metasome. Cephalon scarcely exceeding in length the first 2 segments of mesosome combined, rostral projection very small and obtuse, lateral corners narrowly rounded, postantennal ones but little produced. Coxal plates comparatively small; 1st pair scarcely expanded in their outer part, terminal edge evenly rounded; the 2 succeeding pairs slightly tapering distally; 4th pair somewhat deeper than the corresponding segment, posterior projection not much produced, tip obtusely truncated. Last pair of epimeral plates of metasome produced at the lateral corners to a small, somewhat recurved, dentiform projection defined above by a deep sinus, posterior edge strongly curved in its inferior part. Eyes comparatively small, oval triangular in form, pigment dark red. Superior antennæ rather slender, equalling about $^2/_3$ of the length of the body, 1st joint of the peduncle exceeding in length the other 2 combined, flagellum nearly 4 times as long as the peduncle, and divided into numerous short articulations. Inferior antennæ much shorter than the superior, last joint of the peduncle scarcely attaining the length of the penultimate one, flagellum about twice the length of the peduncle. Gnathopoda much stronger than in the 2 preceding species, propodos in both pairs rather large, fully as long as the basal joint, and oblong in form, slightly tapering distally, palm very oblique, nearly occupying the whole inferior edge of the propodos, and defined posteriorly by a very slight angle, its edge armed with several strong spines, dactylus long and slender, carpus comparatively, short and produced inferiorly to a setous lobe. Pereiopoda rather slender, and edged with tufts of small spines, the 3 posterior pairs nearly equal in length, with the basal joint a regular oval and finely serrated posteriorly. Last pair of uropoda with the outer ramus scarcely exceeding half the length of the inner. Telson oblong oval in form, nearly twice as long as it is broad, tip evenly rounded. Body whitish, with a slight yellowish tinge, and everywhere mottled with reddish brown pigmentary spots. Length of adult female 12 mm.

Remarks. — This form was first described by Kröyer as *Amphithoë bicuspis*, and subsequently referred by Bruzelius to his genus *Paramphithoë*. It is easily distinguishable from the 2 preceding species by the small rostral projection, the presence of only 2 dorsal projections, and especially by the rather different structure of the gnathopoda. The *Pherusa bicuspis* of Sp. Bate cannot properly be identified with the present species.

Occurrence. — I have only met with a few specimens of this form, which were collected off the Finmark coast. According to Boeck it also occurs off the west coast of Norway, thus at Christiansund, at moderate depths among algæ.

Distribution. — Greenland (Kröyer), Spitsbergen (Goës), Iceland (Thorel), Labrador (Packard), Bohuslän (Bruzelius), Kattegat (Meinert), coast of France (Chevreux).

5. **Paramphithoë monocuspis,** G. O. Sars, n. sp.
(Pl. 123, fig. 2).

Very like the preceding species, though perhaps somewhat more robust of form, and having only a single small dorsal projection issuing from the 2nd segment of metasome. Cephalon nearly as in that species, except that the postantennal corners are considerably more produced and spiniform. First pair of coxal plates comparatively much broader than in *P. bicuspis*, and distinctly expanded distally, with a small dentiform projection at the infero-posteal corners; the 2 succeeding pairs likewise comparatively broader, and scarcely tapering distally; 4th pair but little deeper than the corresponding segment, and having the posterior projection short and obtuse. Last pair of epimeral plates of metasome produced at the lateral corners to a dentiform projection, which however is not defined above by any distinct sinus. Eyes somewhat larger than in *P. bicuspis* and more regularly oval in form, pigment dark red. Antennæ nearly as in that species, except that the basal joint of the superior antennæ is somewhat shorter and stouter, scarcely exceeding in length the 2 succeeding joints combined. Gnathopoda likewise of a very similar structure, but comparatively stouter, with the propodos broader in proportion to its length. Pereiopoda rather strong, the 3 posterior pairs successively increasing in length. Last pair of uropoda with the outer ramus considerably exceeding half the length of the inner. Telson oval in form, not nearly twice as long as it is broad, tip evenly rounded. Body whitish, but very sparingly mottled with brown pigment, except in the anterior part of the cephalon and the peduncles of the antennæ, which are very darkly coloured. Length of adult female 11 mm.

Remarks. — I have formerly regarded this form as only a variety of *P. bicuspis,* with which species it is in fact closely allied. On the closer anatomical examination of both forms subsequently instituted, I have, however, found it to differ, not only in the absolute want of the anterior dorsal projection, but also in a few other points mentioned in the above diagnosis, and I have therefore found it necessary to keep it apart as a distinct species. Among some specimens of *P. bicuspis* from Greenland, kindly sent to me for examination by Dr. Hansen, there was a single specimen of this form, perfectly agreeing with the Norwegian specimens.

Occurrence. — Some specimens of the present species were collected by the author, many years ago, at Hammerfest, Finmark, from a depth of 30 to 50 fathoms, among Hydroidæ. This is the only place off the Norwegian coast, where it has as yet occurred.

Distribution. — Greenland (the author). —

6. **Paramphithoë assimilis**, G. O. Sars.

(Pl. 124, fig. 1).

Paramphithoë assimilis, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 99, Pl. 5, fig. 1.

Body rather slender and compressed, and quite smooth, without the slightest trace of any dorsal projections. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection short and obtuse, lateral corners rectangular, postantennal ones but little produced. Anterior pairs of coxal plates comparatively larger than in the 3 above-described species, and nearly twice as deep as the body; 1st pair, however, much smaller than the succeeding ones, and slightly expanded in their outer part, infero-posteal corners of these and the 2 succeeding pairs having a distinct dentiform projection; 4th pair narrowly truncated at the tip, posterior projection acute. Last pair of epimeral plates of metasome rather produced at the lateral corners, without, however, forming any distinctly defined dentiform projection. Eyes comparatively large, and rounded triangular in form. Superior antennæ very much elongated and slender, nearly attaining the length of the whole body, 1st joint of the peduncle somewhat longer than the other 2 combined, and produced at the end inferiorly to a dentiform projection, flagellum more than 4 times as long as the peduncle. Inferior antennæ, as usual, much shorter than the superior, last joint of the peduncle exceeding in length the penultimate one, flagellum about twice as long as the peduncle. Gnathopoda comparatively feeble in structure, with the carpus well-developed and but slightly expanded below, propodos rather narrow, oblong oval in form, and not nearly attaining the length of the basal joint, palm much shorter than the hind margin, which is armed with several fascicles of spines and bristles. Pereiopoda very slender and elongated, basal joint of the 3 posterior pairs regularly oval in form, with the posterior edge serrulated, and, especially in the last pair, considerably arched. Last pair of uropoda rather elongated, with the inner ramus nearly twice as long as the outer, both edged with strong spines. Telson oblong linguiform, fully twice as long as it is broad, and scarcely tapering distally, tip evenly rounded. Colour in the living state of the animal not yet stated. Length of adult female 8mm.

Remarks. — The present species is easily distinguishable from any of those described in the preceding pages, by the absolute want of dorsal projections, the back being throughout quite smooth and evenly rounded. In the structure of the gnathopoda it somewhat resembles *P. pulchella.*

Occurrence. — Some specimens of this form were collected, many years ago, by the author, off the west coast of Norway, in company with *P. pulchella*, the exact locality not having been stated.

Distribution. — Greenland (Hansen).

7. **Paramphithoë brevicornis**, G. O. Sars.

(Pl. 124, fig. 2).

Paramphithoë brevicornis, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 98, Pl. 4, fig. 11.

Body comparatively stout and compact, with the back evenly rounded and without any trace of dorsal projections. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection very slight, lateral corners rectangular, postantennal ones but little produced. Anterior pairs of coxal plates comparatively large, and nearly twice as deep as the body; 1st pair slightly expanded distally, and partly covering the sides of the cephalon as also the whole buccal area, infero-posteal corners of these and the 2 succeeding pairs with a distinct dentiform projection; 4th pair broadly truncated at the tip and having the posterior projection nearly rectangular. Last pair of epimeral plates of metasome but little produced at the lateral corners, the tip of which is obtusely pointed, posterior edge somewhat arched. Eyes rather small, rounded, pigment dark red. Antennæ unusually short; the superior ones scarcely exceeding in length the cephalon and the first 3 segments of mesosome combined, 1st joint of the peduncle rather thick and about the length of the other 2 combined, flagellum not attaining twice the length of the peduncle, and composed of 12 articulations only. Inferior antennæ but little shorter than the superior, the 2 last joints of the peduncle about equal-sized, flagellum scarcely longer than those joints combined. Gnathopoda rather powerful, and nearly exactly alike both in size and structure, carpus in both pairs very short and produced below to a narrow linguiform lobe, propodos very large, fully as long as the basal joint, and rather expanded in the middle, palm about the length of the hind margin and somewhat arched, having below 2 fascicles of strong spines, the posterior of which issues from a distinctly projecting angle. Pereiopoda of moderate length and very slender, sparingly edged with spines, basal joint of the 3 posterior pairs oval in form, that of last pair the largest, having the posterior edge nearly straight and the infero-posteal corner obtusely truncated. Last pair of uropoda comparatively short, inner ramus exceeding the outer by only $^1/_3$ of its length, both having only a small number of marginal spines. Telson oblong triangular in form, not nearly twice as long as it is broad at the base, outer part tapering to an obtuse point. Body whitish, more or less densely ornamented by a dark brownish violet pigment, which sometimes extends all over the anterior part of the body together with the coxal plates, thus giving the body a very dark hue. Length of adult female scarcely attaining 4 mm.

Remarks. — This is a very distinct species, and easily recognizable by its small size, comparatively compact form of body, and especially by the unusually short antennæ. The gnathopoda also exhibit a more powerful structure than in most of the species of this genus.

Occurrence. — I first detected this form in the Varangerfjord, at Vadso, where a few specimens were collected from a depth of 20—30 fathoms. Subsequently I have also found it off West Finmark, at Hammerfest, but farther south it has never been met with by me. Out of Norway it has not yet been recorded.

Gen. 3. **Stenopleustes,** G. O. Sars, n.

Syn.: Amphithopsis, Boeck (part)

Body slender and compressed, with very thin and pellucid integuments, and the back not carinated. Cephalon produced in front to a slight rostral projection, postantennal corners but little produced. Coxal plates not very large. Superior antennæ very slender and much longer than the inferior. Anterior and posterior lips nearly as in *Paramphithoë.* Mandibles, on the other hand, having the molar expansion well-developed, compressed, and densely hairy at the transversely-truncated extremity, palp of moderate size. First pair of maxillæ comparatively shorter and stouter than in the preceding genus, with the palp not expanded distally, and the basal lobe only provided with a single plumose seta. Maxillipeds with the basal lobes rather broad, masticatory lobes comparatively small and having only a few slender hairs on the inner edge, palp less elongated than in *Paramphithoë*, its last joint conically produced in front of the insertion of the dactylus. Gnathopoda comparatively feeble in structure, carpus elongated and but slightly expanded below, propodos rather narrow and imperfectly subcheliform. Pereiopoda slender and elongated. Uropoda and telson nearly as in the preceding genus.

Remarks. — The present new genus is nearly allied to *Paramphithoë*, differing however very markedly in the structure of the mandibles, of which the molar expansion, unlike that in the above genus, is well developed and of a peculiar, compressed form. Also in the structure of the 1st pair of maxillæ and that of the maxillipeds we find some differences from those in the preceding genus. The 2 species described in the sequel, the only ones as yet known, perfectly agree in all essential characteristics, though being, specifically, pretty well defined.

8. **Stenopleustes Malmgreni** (Boeck).

(Pl. 125, fig. 1.)

Amphithopsis Malmgreni, Boeck, Crust. amph. bor. & arct. p. 119.

Body very slender and perfectly smooth, the back being evenly rounded throughout. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection rather short and blunt at the tip, lateral corners distinctly angular. Anterior pairs of coxal plates but little deeper than the body, and successively increasing in size to the 4th; 1st pair scarcely expanded in their outer part, and having the distal edge evenly curved, without any dentiform projection at the infero-posteal corners; 4th pair broadly rounded at the tip, posterior edge below the hind projection somewhat oblique; the 2 succeeding pairs with the posterior lobe much deeper than the anterior and obtusely truncated at the tip. Last pair of epimeral plates of metasome nearly rectangular. Eyes very large, reniform, nearly occupying the entire height of the cephalon, visual elements very distinct, pigment light red. Superior antennæ extremely slender and elongated, attaining the length of the whole body, 1st joint of the peduncle about the length of the other 2 combined and rather thick, flagellum nearly 6 times as long as the peduncle, and having the 1st joint much elongated. Inferior antennæ scarcely more than half as long as the superior, last joint of the peduncle exceeding in length the penultimate one, flagellum about $1^1/_2$ times as long as the peduncle. Anterior gnathopoda somewhat smaller than the posterior ones, propodos in the former scarcely as long as the carpus, and oblong oval in form, with the palm very oblique and bordered with several spines; that of the posterior ones fully as long as the 2 preceding joints combined. Pereiopoda very slender, and edged with tufts of small spines, basal joint of the 3 posterior pairs rather large and oval in form, with the hind edge smooth. Last pair of uropoda with the inner ramus 3 times as long as the basal part, outer ramus much shorter, both edged with strong spines. Telson rather small, oblong triangular in form, gradually tapering distally, tip obtusely rounded. Body pellucid, whitish, sometimes with a faint tinge of flesh-colour, but without any trace of true pigmentary ornament. Length of adult female 7 mm.

Remarks. — This form was erroneously referred by Boeck to his genus *Amphithopsis,* the type of which, according to that author, is *A. longicaudata*, and it was thus placed in an entirely different family, viz., that of the *Atylidæ.* Boeck moreover referred to the same genus 2 other species, which evidently belong to the present family, and which will be described farther on as species of the genus *Parapleustes* Buchholz. The present species is easily distinguishable by its slender and perfectly smooth body and the greatly elongated superior antennæ. In the living state the absolute want of any pigmentary ornament will also serve for readily recognizing the species.

Occurrence. — I have met with this form in several places off the west coast of Norway, as also in the Trondhjemsfjord, and as far north as Selsøvig, lying exactly within the polar circle. It is a true deep water form, occurring only in depths ranging from 80 to 150 fathoms. Particularly where the great Alcyonarian *Paragorgia arborea* grows, this is form found in great abundance clinging to its branches. Boeck also collected it in the Christianiafjord. Out of Norway it has not yet been recorded.

9. **Stenopleustes nodifer**, G. O. Sars.

(Pl. 125, fig. 2).

Amphithopsis nodifera, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 103, Pl. 5, fig. 6.

Form of body about as in the preceding species, back evenly rounded anteriorly, but having posteriorly, on each of the 2 anterior segments of metasome, 2 juxtaposed obtuse, nodiform projections issuing from the hind dorsal margin of those segments. Cephalon with the rostral projection a little more produced than in *S. Malmgreni,* lateral corners not angular, but narrowly rounded at the tip. Coxal plates nearly as in that species, except that the 4th pair appear somewhat narrower in proportion to their depth. Last pair of epimeral plates of metasome somewhat produced at the lateral corners. Eyes large, and pronouncedly reniform in shape, visual elements very conspicuous, pigment dark red. Superior antennæ greatly elongated, 1st joint of the peduncle somewhat longer than the other 2 combined. Inferior antennæ scarcely half as long as the superior Gnathopoda feeble in structure, and very like those in the preceding species, except that the palm of the propodos is relatively somewhat shorter. Pereiopoda likewise of much the same appearance as in that species, basal joint of last pair, however, considerably larger than that of the 2 preceding pairs and having the posterior edge but very little curved. Last pair of uropoda about as in *S. Malmgreni.* Telson somewhat more elongated, and considerably narrowed in its outer part, tip bluntly pointed. Body whitish, pellucid, more or less densely speckled with a yellowish and brownish pigment, peduncles of the superior antennæ, as also the uropoda generally dark brown. Length of adult female about 5 mm.

Remarks. — This form was at first described by the author under the name of *Amphithopsis nodifera.* It is indeed very closely allied to the *Amphithopsis Malmgreni* of Boeck, but as the latter form has turned out not to be a true *Amphithopsis*, the generic name of the present species must be changed in accordance therewith. It is easily distinguishable from any of the other forms belonging to this family, by the peculiar nodiform projections of the 2 anterior segments of metasome.

Occurrence. — I have met with this form not rarely in several places, both off the south and west coasts of Norway, as also in the Trondhjemsfjord, in depths varying from 30 to 100 fathoms. Off the Finmark coast, on the other hand, it seems to be wholly absent.

Distribution. — British Isles (Robertson).

Gen. 4. **Parapleustes,** Buchholz, 1874.

Syn.: Paramphithoë, Boeck (part).
- Pleustes, Boeck (part).
- Amphithopsis, Boeck (part).

Body, as a rule, less slender than in the preceding genus, sometimes even very robust of form. Cephalon slightly produced in front, and having the postantennal corners more or less projecting. Coxal plates of middle size, and successively increasing to the 4th pair. Superior antennæ less elongated than in *Stenopleustes*, though considerably longer than the inferior ones. Anterior and posterior lips as in the preceding genera. Mandibles with the molar expansion well developed and of cylindrical form, exhibiting the usual fluted triturating surface, palp rather large, with the last joint a falciform curve. First pair of maxillæ well developed, palp slightly dilated distally, basal lobe provided with 2 plumose setæ. Second pair of maxillæ and maxillipeds about as in the preceding genus. Gnathopoda somewhat unequal, the posterior ones being, as a rule, much stronger than the anterior and more pronouncedly subcheliform. Pereiopoda less elongated than in the genus *Stenopleustes*, and sometimes of very robust structure. Uropoda and telson about as in the preceding genera.

Remarks. — The present genus, established by Buchholz, is chiefly distinguished from the other genera belonging to this family, by the structure of the mandibles, the molar expansion of which exhibits the cylindrical form usually met with in the typical Amphipoda. Moreover the gnathopoda are more or less unequal, the posterior ones being sometimes very strongly built. Besides the 3 Norwegian species described in the sequel, the *Amphithopsis Olriki* of Hansen would seem to belong to this genus.

10. **Parapleustes glaber** (Boeck).

(Pl. 126, fig. 1).

Paramphithoé glabra, Boeck, Crust. amph. bor. & arct. p. 95.
Syn.: Paramphithoë exigua, Goës.
- Pleustes glaber, Boeck.
- Parapleustes gracilis, Buchholz.

Body moderately slender, glabrous, with evenly-rounded back. Cephalon exceeding in length the first 2 segments of mesosome combined, front produced to a distinct, though not very large, rostral projection, lateral corners acuminate at the tip, postantennal ones produced to a spiniform, anteriorly-curving process. Anterior pairs of coxal plates considerably deeper than the body, the first 3 pairs each with a very conspicuous dentiform projection at the inferoposteal corner, anterior corner rounded; 4th pair obtusely truncated at the tip, posterior projection nearly right-angled; 5th pair rather small, with the posterior lobe but little deeper than the anterior. Last pair of epimeral plates of metasome produced at the lateral corners to a small, somewhat recurved, dentiform projection, defined above by a small sinus. Eyes of moderate size, rounded oval in form, pigment dark red. Superior antennæ attaining about $^2/_3$ of the length of the body, 1st joint of the peduncle rather prolonged, much longer than the other 2 combined, and produced at the end inferiorly to a spiniform projection, flagellum more than 3 times as long as the peduncle, and composed of numerous articulations, the 1st of which is rather elongated. Inferior antennæ somewhat exceeding half the length of the superior, last joint of the peduncle longer than the penultimate one, flagellum scarcely twice as long as the peduncle. Gnathopoda of moderate size and less unequal than in the other species, propodos in both pairs oblong oval in form and exceeding in length the 3 preceding joints combined, palm very oblique, much longer than the hind margin, and having, below, 2 fascicles of strong spines, carpal lobe narrowly rounded and densely setous. Pereiopoda rather slender, basal joint of the 3 posterior pairs regularly oval in form, and having the posterior edge distinctly serrated. Last pair of uropoda with the inner ramus nearly twice as long as the outer. Telson oblong oval in form, nearly twice as long as it is broad, tip evenly rounded. Colour rather variable, but generally whitish, variegated with larger, often confluent patches of a reddish brown hue. Length of adult female scarcely exceeding 6 mm.

Remarks. — The present form was at first announced by Boeck, at the meeting of the Scandinavian naturalists in 1860, under the name of *Amphithopsis glabra*, but subsequently referred to the genus *Paramphithoë*. In his great work on the Northern Amphipoda it was more fully described and figured as *Pleustes glaber*. According to that author the *Paramphithoë exigua* of Goës is identical with the present species. The same is evidently also the case with *Parapleustes gracilis* of Buchholz, though Dr. Hansen seems inclined to regard this form as identical with the above-described *Paramphithoë brevicornis* G. O. Sars. From the 2 succeeding species the present form is easily distinguishable, by the spiniform projection of the basal joint of the superior antennæ, as also by the structure of the gnathopoda.

Occurrence. — Off the whole coast of Finmark this species is very frequently met with in rather shallow water among algæ. Occasionally it also occurs off the west coast of Norway, and according to Boeck also in the Christianiafjord.

Distribution. — Greenland (Buchholz), Spitsbergen (Goës), Iceland (Torell), the Murman coast (Jarzynsky), Kattegat (Meinert).

11. **Parapleustes pulchellus**, G. O. Sars.

(Pl. 126, fig. 2).

Amphithopsis pulchella, G. O. Sars, The Norw. North Atl. Exped Crustacea I, p. 175, Pl. XIV, fig. 6.

Body comparatively less slender than in the preceding species, and having the segments more sharply defined, though without any dorsal projections. Cephalon scarcely exceeding in length the first 2 segments of mesosome combined, rostral projection very small, lateral corners angular at the tip, postantennal ones but very little produced. Anterior pairs of coxal plates nearly as in the preceding species, except that the dentiform projection at the infero-posteal corners is nearly obsolete, 4th pair narrowly truncated at the tip, and having the posterior edge below the emargination rather oblique; the 2 succeeding pairs with the posterior lobe much deeper than the anterior. Last pair of epimeral plates of metasome not produced at the lateral corners, which are obtuse-angled. Eyes not very large, reniform, pigment bright red. Superior antennæ not quite as long as in *P. glaber*, 1st joint of the peduncle without any spiniform projection, and scarcely longer than the other 2 combined, flagellum about 3 times as long as the peduncle. Inferior antennæ scarcely more than half as long as the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum not nearly twice as long as the peduncle. Anterior gnathopoda rather slender, with the carpus comparatively large, nearly as long as the propodos, and having, below, a broad setous expansion, propodos rather narrow at the base, and slightly widening distally, palm much shorter than the hind margin and imperfectly defined below, its edge smooth and slightly curved, having on each side 3 small spines. Posterior gnathopoda much more powerful than the anterior, though scarcely longer, carpus comparatively short and produced inferiorly to a narrowly rounded setous lobe, propodos very strong, nearly as long as the basal joint, and oblong oval in form, slightly widening distally, palm much shorter than the hind margin and well defined below, its edge somewhat flexuous, and armed in its lower part on each side with 3 very coarse spines, dactylus comparatively short, but rather strong. Pereiopoda, especially the 3 posterior pairs, much more strongly built than in *P. glaber*, basal joint of the latter pairs rather large, oval, with the posterior edge smooth. Last pair of uropoda with the inner ramus exceeding the outer by about $^1/_3$ of its length, both exhibiting a smaller number of marginal spines than in the preceding species. Telson rather small, and pronouncedly navicular in form, tip obtusely pointed. Body whitish, everywhere ornamented with small pinkish pigmentary spots. Length of adult female 7 mm.

Remarks. — I first referred this form to the genus *Amphithopsis* of Boeck, not being at that time aware of the fact, that this genus, in the sense in wich Boeck gave it, is a most collective one, including, as it does, at least 3 different genera, not even belonging to the same family. That the present form ought to be ranged within the family *Pramphithoidæ*, is unquestionable, and I think it will find its proper place in the genus *Parapleustes*, occupying, as it does, in some points, an intermediate position between the 2 other species included in this genus. From *P. glaber* it is easily distinguishable, by the want of any spiniform projection on the basal joint of the superior antennæ, as also by the structure of the gnathopoda, in which latter respect it somewhat approaches the succeeding species. The specific name refers to the peculiar and beautiful colouring of the body.

Occurrence. — Off the coast of Norway, I have hitherto only met with this form in a single locality, viz., Bugø in the Varangerfjord, where a few specimens were collected from a depth of 50—100 fathoms.

Distribution. — Spitsbergen and Iceland (Norw. North Atl. Expedition), Greenland (Hansen).

12. **Parapleustes latipes** (M. Sars).

(Pl. 127),

Amphithoë latipes, M. Sars, Forh. Vid. Selsk. Christiania 1858, p. 139.
Syn.: Calliope Fingalli, Sp. Bate (adult).
- Calliope Ossiani, Sp. Bate (juv.).
- Amphithopsis latipes, Boeck.

Body very strongly built, with the segments sharply defined from each other, those of metasome and the last one of mesosome elevated at the end dorsally to obtuse projections, the posterior of which is compressed gibbous in shape. Cephalon rather small, not nearly attaining the length of the first 2 segments of mesosome combined, rostral projection not very large, lateral corners forming a rounded lobe distinctly emarginated at the tip, postantennal ones but little produced. Coxal plates rapidly increasing in size to the 4th pair and not exhibiting any projection at the infero-posteal corners; 1st pair rather small, with the anterior corner angularly produced; 4th pair nearly twice as deep as the corresponding segment, and narrowly truncated at the tip, posterior edge below the emargination rather oblique; the 2 succeeding pairs with the posterior lobe much deeper than the anterior. Last pair of epimeral plates of metasome very slightly produced at the lateral corners. Eyes rather large, oblong reniform, pigment dark red. Superior antennæ somewhat exceeding half the length of the body, 1st joint of the peduncle rather large, exceeding in length the other 2 combined, and somewhat produced at the end anteriorly, flagellum about 3 times as long as the peduncle, and composed of numerous articulations, the 1st of which is rather elongated. Inferior antennæ scarcely more than half as long as the superior, last joint of the peduncle exceeding in length the penultimate one, flagellum but little longer than the peduncle. Gnathopoda very unequal; the anterior ones rather feeble in structure, with the carpus well developed, and forming below a broad setous expansion, propodos scarcely longer than the carpus, and nearly triangular in form, palm well defined and about the length of the hind margin, its edge smooth and slightly curved, bearing a few small spinules besides fine hairs. Posterior gnathopoda exceedingly powerfully developed, carpus extremely short and produced below to a narrow setous lobe, propodos very large, nearly equalling in length the remaining part of the leg, and considerably expanded distally, palm somewhat hollowed, with a small projection above the middle, and having below on the outer side a somewhat projecting, broadly-truncated lobe armed with 5 strong spines; within the latter there is a groove, defined above by a ridge bearing a similar row of spines, and in this groove the outer part of the strong dactylus is received, when bent in against the propodos. Pereiopoda, especially the 3 posterior pairs, extremely strongly built, and edged with fascicles of short spines; basal joint of the latter pairs of moderate size and oval form, with the posterior edge nearly straight, and quite smooth, meral joint considerably expanded, and produced at the infero posteal corner to a triangular pointed lobe; carpal joint produced in a similar manner, and very broad in its outer part; dactylus in all pairs strong and curved. Last pair of uropoda with the inner ramus exceeding the outer by about $^1/_3$ of its length, both, as usual, edged with strong spines. Telson very small and distinctly navicular in form, tip evenly rounded. Body whitish, ornamented with patches of a dark brownish pigment, forming more or less distinct transverse bands extending down the coxal plates, peduncles of the antennæ, legs and urosome likewise more or less ornamented with the same pigment. Length of adult female reaching 12 mm.

Remarks. — This is a very distinct and easily recognizable form, the systematic position of which has however hitherto been wholly misunderstood. It was at first described by my late father under the name of *Amphithoë latipes,* and was subsequently recorded by Sp. Bate under 2 different names, viz., *Calliope Fingalli* and *Calliope Ossiani,* the latter form being evidently, as pointed out by Boeck, only founded on young specimens, in which the dorsal projections are far less distinctly developed than in the adult state. Boeck referred the species to his genus *Amphithopsis,* the type of which, according to that author, is *A. longicaudatus.* But it is, in fact, very different both to this form and the genus *Calliopius,* and does not even belong to the same family. In all essential anatomical features it shows itself to be a true member of the family *Paramphithoidæ,* as defined above, and, in spite of its rather different external appearance, it exhibits so much affinity to the 2 preceding species, that, in my opinion, it ought to be classed within the same genus.

Occurrence. — The species would seem to be distributed along the whole coast of Norway, from the Christianiafjord to Vadsø, being generally found clinging to Hydroidæ (Sertularidæ) taken from deep water, 30 to 100 fathoms. It was first detected by my late father at Hammerfest and Tromsø, Finmark, and I have myself collected it in several places, both off the Finmark coast and off the west and south coasts of Norway, as also in the Trondhjemsfjord.

Distribution. — British Isles (Sp. Bate), Greenland, (Hansen).

Fam. 12. Epimeridæ.

Body, as a rule, rather strongly built, and more or less spiny, with the integuments highly incrusted. Coxal plates rigid, more or less projecting laterally, and generally tapering to a point. Eyes distinctly developed and somewhat prominent. Antennæ slender with many-jointed flagella, the superior ones shorter than the inferior and without any accessory appendage. Anterior lip rounded; posterior lip without any inner lobes. Mandibles strong, with well-developed molar expansion, cutting edge more or less strongly dentated and having on each mandible a likewise dentated supplementary lamella, palp of moderate size. Maxillæ and maxillipeds of normal structure.

Gnathopoda subequal, and rather feeble, with elongated carpus and narrow, sublinear propodos. Pereiopoda moderately slender, basal joint of the 3 posterior pairs not much expanded. Last pair of uropoda with short basal part and broadly lanceolate subequal rami. Telson of moderate size, unarmed, entire or slightly insinuated at the tip. Sexual difference very slight.

Remarks. — The family is here taken in the same restriction as adopted by Boeck in his great work on the Northern Amphipoda. I formerly[1]) also combined with this family the subfamily *Iphimedinæ* of Boeck, on account of the unmistakable resemblance as to the external appearance. Considering, however, the materially different structure of the oral parts and of the gnathopoda, I now find it more suitable to keep both families apart. From the family *Paramphithoidæ*, the present one chiefly distinguishes itself by the different mutual relation of the 2 pairs of antennæ, the characteristic form of the coxal plates, the rather different appearance of the anterior and posterior lips, and finally, by the structure of the gnathopoda and of the last pair of uropoda. Besides the 2 genera described in the sequel, the genus *Acanthechinus* of Stebbing ought, in my opinion, to be referred to this family, and not, as proposed by that author, to the *Iphimedidæ*.

Gen. 1. **Epimeria,** Costa, 1851.

Syn.: Acanthonotus, Sp. Bate (part.)

Body rather stout and tumid, having some of the segments raised dorsally to laminar posteriorly pointing projections. Cephalon produced in front to an acuminate, more or less curved rostrum, lateral corners nearly obsolete, postantennal ones forming a rather deep, deflexed, linguiform lobe obtecting the basal joint of the inferior antennæ. The 3 anterior pairs of coxal plates narrow, tapering to a point; 4th and 5th pairs very large and projecting laterally, the former much deeper than any of the others, with the outer part falciform curved, and the posterior projection rather produced; the latter exserted at the infero-posteal corners to a more or less projected mucroniform process. Eyes rather convex, with the visual elements less distinctly developed. Antennæ of moderate length and not very unequal, flagellum of both pairs very flexible, and composed of numerous short articulations. Mandibles moderately strong, cutting edge coarsely dentated, molar expansion comparatively small, though normally developed, palp about the length of the mandible. First pair of maxillæ with the masticatory lobe rather broad and obliquely truncated at the tip, basal lobe triangular, with numerous ciliated bristles, palp normally developed. Second pair of maxillæ with both lobes short and broad, the outer one being the larger and obliquely truncated at the tip. Maxillipeds with the basal and masticatory lobes well developed, the latter rounded oval in form and edged at the tip with strong curved setæ successively transformed inwards to slender spines, inner edge sharpened and finely serrated, palp not very large, dactylus unguiform. Gnathopoda rather small, and almost exactly of same structure, imperfectly subcheliform, palm of the propodos very short and not defined below by any distinct angle. Pereiopoda comparatively slender, basal joint of the 3rd pair rather narrow, last pair somewhat shorter than the penultimate one and having the basal joint more expanded. Uropoda with the rami lanceolate and edged with very small spinules, last pair differing from the preceding pairs by the short basal part and the more foliaceous character of the rami. Telson rounded quadrangular in form, tip slightly insinuated.

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[1]) Oversigt af Norges Crustaceer I.

Remarks. — This genus was established by Costa in the year 1851 to include a Mediterranean form, *E. tricristata,* which is considered by Boeck to be identical with *E. cornigera* of Fabricius, to be described in the sequel. The genus is chiefly characterised by the peculiar form of the 4th and 5th pairs of coxal plates, which give the species a most strange appearance. It comprises 4 Norwegian species, one of which is now for the first time established, while another form has formerly been confounded with *E. cornigera.*

1. **Epimeria cornigera** (Fabr).

(Pl 128).

Gammarus corniger, Fabricius, Reise nach Norwegen, p. 83.
Syn.: Vertumnus Cranchii, White.
- Acanthonotus Cranchii, White.
- Acanthonotus testudo, White.
- Epimeria tricristata, Costa.
- Acanthonotus Oweni, Sp, Bate.

Body much inflated, with the anterior part of the back broadly vaulted, posterior part distinctly carinated, the carina beginning at the antepenultimate segment of mesosome and forming, in this and the 4 succeeding segments, laminar, posteriorly pointing projections, acute at the tip; 1st segment of urosome likewise carinated in its posterior part, and produced to an acute projection, in front of which there is a small, saddle-like impression. Last segment of mesosome and those of metasome having, moreover, on each side, a subdorsal keel, terminating in each segment, except the last, in a small tooth-like projection.

Cephalon very broad and evenly vaulted above, rostrum curved downwards and reaching somewhat beyond the basal joint of the superior antennæ. The 3 anterior pairs of coxal plates successively increasing in size, and acuminate at the tip; 4th pair much deeper than the corresponding segment, with the outer part evenly curved, and terminating in a sharp point; 5th pair scarcely more than half as deep as the former, and having the mucroniform projection rather produced. Epimeral plates of metasome each having the posterior edge biangular, those of last segment scarcely differing from the preceding pairs. Eyes of moderate size, rounded, and very convex, pigment bright carmine red. Superior antennæ about equalling $1/3$ of the length of the body, 1st joint of the peduncle longer than the other 2 combined, flagellum nearly 3 times as long as the peduncle, and composed of about 40 short articulations. Inferior antennæ but little longer than the superior, the 2 outer joints of the peduncle nearly equal-sized, flagellum about twice the length of the peduncle. Gnathopoda with the propodos rather narrow and shorter than the carpus, having below several transverse rows of short bristles, palm joining the hind margin by an even curve. Last pair of pereiopoda with the basal joint about the length of the 3 succeeding joints combined, and more than half as broad as it is long, posterior edge strongly curved in its upper part and sinuated below, infero-posteal corner forming an acute triangular lobe. Last pair of uropoda with the rami rather broad, and about 3 times as long as the basal part. Telson scarcely longer than it is broad at the base, outer part somewhat tapering, apical sinus rather small. Body whitish, with a slightly reddish tinge, each segment bordered at the posterior edge with pink; urosome, peduncle of the superior antennæ, oral area, and tips of the 4th and 5th pairs of coxal plates likewise pinkish in colour. Length of adult female reaching 16 mm.

Remarks. — The present species, the type of the genus, was first described by Fabricius as *Gammarus corniger*, and was subsequently recorded by White and Sp. Bate under several other names, mentioned above. Boeck confounded this and the next species, but his figures and description unquestionably apply to the present form. Whether the *Epimeria tricristata* is in reality identical with this or the next species, I am unable to decide with certainty, as both species are very nearly related.

Occurrence. — The species is rather frequently met with along the whole west coast of Norway, at least up to the Trondhjemsfjord, in greater depths, ranging from 50 to 150 fathoms. In the region of the deep sea corals, it is often found even in great abundance.

Distribution. — British Isles (Sp. Bate); coast of France (Chevreux), Mediterranean (Costa).

2. **Epimeria parasitica**, (M. Sars).

(Pl. 129, fig. 1).

Amphithoë parasitica, M Sars, Christ. Vid. Selsk. Forh, 1858, p. 131.

Syn.: Epimeria cornigera Boeck, (part.)

Very like the preceding species in its external appearance, but rather inferior in size. Dorsal carina beginning with the antipenultimate segment of mesosome, and having the projections less acute at the tip than in that species; subdorsal keels well defined, and terminating, in each of the segments, the posterior one included, in a distinct dentiform projection. Cephalon nearly as in *E. cornigera*, except that the postantennal corners are distinctly angular at the tip. Fourth pair of coxal plates very largely developed, having the outer part considerably curved and falciform in shape. Last pair of epimeral plates of metasome rather unlike the preceding pairs, being produced at the lateral corners to a very strong mucroniform projection, posterior edge smooth, without the slightest trace of any angular prominence. Eyes rather large, somewhat triangular in shape, their upper part tapering to an obtuse point, pigment a brilliant carmine. Superior antennæ comparatively less elongated than in the type species, 1st joint of the peduncle about the length of the other 2 combined, flagellum scarcely more than twice as long as the peduncle and composed of about 20 articulations. Inferior antennæ but little longer than the superior, the last 2 joints of the peduncle about equal-sized, flagellum twice the length of the peduncle. Gnathopoda with the propodos about the length of the carpus, and very slightly widening distally. Last pair of pereiopoda with the basal joint nearly as long as the remaining part of the leg, and fully twice as long as it is broad, posterior edge evenly curved in its upper part, infero-posteal corner produced to a triangularly-pointed lobe. Last pair of uropoda with the rami comparatively narrower than in the preceding species and having a smaller number of marginal spinules. Telson oval quadrangular in shape, longer than it is broad, tip slightly insinuated in the middle. Colour dark red, more intense at the posterior edges of the segments. Length of adult female scarcely exceeding 9 mm.

Remarks. — The present form was first described by my late father as *Amphithoë parasitica*, but was subsequently confounded by Boeck with *E. cornigera*, to which species, it certainly bears a great resemblance in its general appearance. On a closer examination, it is, however, readily distinguished from that species, by the rather deviating form of the eyes and of the last pair of epimeral plates of metasome. It, moreover, distinguishes itself by some other structural details mentioned in the above diagnosis, as also by its greatly inferior size.

Occurence. — The species was first detected by my late father at Christiansund, living in a semiparasitic state on the skin of *Holothuria tremula.* I have found it under similar circumstances in some other places, both off the south and west coasts of Norway. It is for instance not uncommonly met with in the outer part of the Christianiafjord, where the type species would seem to be wholly wanting. Out of Norway it has not yet, with certainty, been recorded.

3. **Epimeria tuberculata**, G. O. Sars, n. sp.

(Pl. 129, fig. 2).

General habitus about as in the 2 preceding species. Dorsal carina beginning with the penultimate segment of mesosome, and having the projections rather blunt; subdorsal keels very slight and without any dentiform projections. First segment of urosome with a very conspicuous narrow saddle-like depression dorsally, below which there is a rather low rounded prominence tipped by a blunt mammilliform projection. Cephalon with the rostrum nearly straight, and but little projecting beyond the basal joint of the superior antennæ, postantennal corners subangular at the tip. The 3 anterior pairs of coxal plates somewhat blunted at the tip; 4th pair comparatively smaller than in the other species, and having the outer part much shorter, and less distinctly falciform; 5th pair with the posterior projection blunt at the tip. Last pair of epimeral plates of metasome about as in *E. cornigera,* having, like the preceding pairs, above the lateral corners a distinct angular projection. Eyes of moderate size, rounded, and rather prominent, pigment a light carmine. Superior antennæ comparatively short, scarcely exceeding $^1/_5$ of the length of the body, 1st joint of the peduncle rather large, and much longer than the other 2 combined, flagellum scarcely more than twice as long as the peduncle, and composed of about 24 articulations. Inferior antennæ considerably longer than the superior, last joint of the peduncle shorter than the penultimate one, flagellum two and a half times as long as the peduncle. Gnathopoda with the propodos much shorter than the carpus, and very narrow, scarcely at all widening distally. Last pair of pereiopoda with the basal joint not nearly attaining the length of the remaining part of the leg, posterior edge slightly curved, infero-posteal corner blunted. Last pair of uropoda about as in *E. cornigera.* Telson rather broad, scarcely longer than it is broad at the base, posterior sinus very slight, terminal lobes bluntly rounded. Colour whitish, with a very faint rosy tinge. Length of adult female reaching 16 mm.

Remarks. — In the living state the present new species is at once recognized by its very pale, nearly pure white colour. It also distinguishes itself, on a closer examination, by the nearly straight rostrum, the less strongly developed 4th and 5th pairs of coxal plates, and the very slight subdorsal keels, and finally, by the peculiar mammilliform shape of the dorsal projection of the 1st segment of urosome.

Occurrence. — I have only met with this form quite solitary, in a few places off the west coast of Norway, as also in the Trondhjemsfjord. The specimens were in every case collected from rather great depths ranging from 150 to 200 fathoms.

4. **Epimeria loricata**, G. O. Sars.

(Pl. 129, fig. 3).

Epimeria loricata, G. O. Sars, Crust. & Pycnog. nova in itinere 2do et 3tio Exped. Norv. collecta, No. 26.

Syn.: Epimeria cornigera, Verrill
„ „ conspicua, Stebbing.

Body comparatively less tumid than in the other species, and having the integuments very strongly incrusted. Dorsal carina extending throughout the whole mesosome and metasome and elevated in all the segments to laminar, posteriorly pointing projections, obtuse at the tip, and successively increasing in size from front to back, that of last segment of metasome somewhat differing in shape from the preceding ones, being slightly depressed in the middle, and having the posterior part acutely produced; 1st segment of urosome with a similar, triangularly-pointed dorsal projection, in front of which there is a deep saddle-like depression. All segments of mesosome provided on each side, somewhat nearer the dorsal face, with an obtuse posteriorly-pointing tubercle, those of metasome each with 4 similar but somewhat smaller lateral tubercles. Cephalon produced in front to a very long, nearly straight rostrum extending even somewhat beyond the peduncle of the superior antennæ. Coxal and epimeral plates nearly as in *E. cornigera.* Eyes not very large, rounded, and very prominent, pigment bright red. Superior antennæ somewhat exceeding $^1/_4$ of the length of the body, 1st joint of the peduncle much larger than the other 2 combined, flagellum nearly 3 times as long as the peduncle. Inferior antennæ somewhat longer than the superior, and of the usual structure. Gnathopoda comparatively stronger than in the other species, the propodos being longer than the carpus and considerably expanded distally. Last pair of pereiopoda with the basal joint much shorther than the remaining part of the leg, posterior edge considerably curved, infero-posteal corner but little produced. Last pair of uropoda with the rami rather broad, otherwise of the usual appearance. Telson a little longer than it is broad at the base, and gradually tapering distally, tip with a short and narrow sinus. Colour a magnificent coral-red, somewhat more intense at the posterior edges of the segments. Length of a nearly adult specimen 24 mm. Maximum length of arctic specimens reaching 40 mm.

Remarks. — The present species was detected in the year 1878 during the 3rd cruise of the Norwegian North Atlantic Expedition. It is undoubtedly identical with the form at first recorded by Whiteaves and Verrill as *Epimeria cornigera*, and by the Rev. Mr. Stebbing as *E. conspicua*. From the other species is is easily distinguishable both by its large size, and by several well-marked structural details, for instance by the much more strongly developed dorsal carina, the numerous obtuse lateral tubercles, and the greatly prolonged rostrum; moreover the gnathopoda are comparatively more strongly built than usual.

Occurrence. — The only place on the Norwegian coast, where I have met with this species, is at Hasvig, west Finmark, where a few apparently not yet fully adult specimens were collected from a depth of 100 to 150 fathoms.

Distribution. — Off the south and west coasts of Spitsbergen (Norw. North. Atl. Exped.), Atlantic coast of North America (Sidn. Smith, Stebbing), Greenland (Hansen).

Gen. 2. **Acanthozone,** Boeck, 1870.

Syn.: Acanthosoma, Owen.

Body densely spinous, spines arranged in longitudinal rows both along the back and sides. Cephalon with a very small rostral projection, postantennal corners spiniform. Coxal plates comparatively small, but rigid and projecting laterally, each terminating with one or more acute lappets, 4th and 5th pairs not very different from the others. Eyes well developed and rather prominent. Antennæ very slender and elongated, especially the inferior ones. Anterior and posterior lips about as in *Epimeria*. Mandibles very strong, with the cutting edge bluntly dentated and the molar expansion very thick, palp large. First pair of maxillæ nearly as in *Epimeria*; 2nd pair with the lobes comparatively narrower, and about of equal length. Maxillipeds scarcely differing from those in *Epimeria*. Gnathopoda rather feeble in structure, having the propodos elongated and narrow. Pereiopoda comparatively strongly built, the 3 posterior pairs of same structure, and successively increasing in length, basal joint moderately expanded, and having the posterior edge divided into acute lappets. Last pair of uropoda with the rami subequal and lanceolate in form. Telson rather elongated, with the apex entire

Remarks. — The present genus was established by Owen as early as in the year 1835, but as the name he propose, *Acanthosoma*, was already appropriated in Entomology, Boeck changed it, in 1870, to *Acanthozone.* The genus is chiefly characterised by the extraordinarily rich spinous armature of the body, to which character may be added several other peculiarities in the structural details, mentioned in the above diagnosis. The genus *Acanthechinus* of Stebbing is apparently nearly allied to the present genus, and undoubtedby belongs to the same family, and not, as opined by that author, to the Iphimedidæ. The only as yet known species belonging to the present genus, is the arctic form described in the sequel.

5. **Acanthozone cuspidata**, (Lepechin).

(Pl. 130).

Oniscus cuspidatus, Lepechin, Acta Petropol. 247, Pl. VIII, fig. 3.
Syn : Acanthosoma hystrix, Owen.
„ Amphithoë hystrix, Kröyer.
,, Paramphithoë hystrix, Bruzel.

Body not very tumid, nearly cylindric in form. Mesosome with 5 longitudinal rows of spines, one dorsal, 2 subdorsal, and 2 lateral; dorsal spines very large, lanceolate, erect, and continued along the metasome, each pointing successively more backwards, 1st segment of mesosome with an additional, very large, laminar, dorsal projection turned straight forwards above the cephalon; spines of the subdorsal keels much smaller, though somewhat increasing in size backwards, and continued on the first 2 segments of metasome, 1st segment of mesosome with an additional rather minute subdorsal spine on each side at the base of the anterior dorsal projection; spines of the lateral keels formed by the greatly projecting inferior edges of the segments of mesosome. Epimeral plates of metasome divided in the 2 anterior segments into 3, in the last segment into 2 greatly produced spiniform lappets, minutely denticulated on the edges. First segment of urosome with a triangular compressed dorsal projection, and having besides, like the succeeding segment, just above the insertion of the uropoda, a small, recurved, lateral spine. Cephalon greatly vaulted above, the front being nearly perpendicularly deflexed, rostral projection very small, and horizontally projected, lateral corners forming a very slight, lobular expansion subtruncated al the tip, postantennal ones prolonged to a large anteriorly curving spiniform process. First pair of coxal plates having the anterior corner produced to an acute projection; the 2 succeeding pairs likewise tapering to an acute point, which however turns more downwards; 4th pair somewhat larger than the preceding pairs, and divided at the tip into 2 strong, inferiorly-pointing, spiniform lappets; 5th pair having likewise 2 acute projections, which however turn straight backwards; the 2 last pairs each with a small dentiform projection posteriorly. Eyes rather large and prominent, rounded, pigment dark brown. Superior antennæ nearly attaining half the length of the body, 1st joint of the peduncle about the length of the other 2 combined, and produced at the end anteriorly to a large spiniform projection, flagellum about 3 times as long as the peduncle, and composed of numerous short articulations. Inferior antennæ much longer than the superior, joints of the peduncle produced at the end to triangular dentiform projections, flagellum extremely slender, and nearly 4 times as long as the peduncle. Gnathopoda with the propodos about the length of the 2 preceding joints combined, and rather narrow, but very slightly widening distally, palm nearly transverse, dactylus small. Pereiopoda edged with fascicles of short spines, basal joint of the 3 posterior pairs divided posteriorly into 2 acuminate lappets. Last pair of uropoda a little projecting beyond the others, rami more than twice as long as the basal part, and edged with small denticles and a few minute bristles. Telson oblong subtriangular in form, gradually tapering distally, tip narrowly truncated. Body light straw-coloured, more or less mottled with a brownish pigment. Length of adult female 19 mm.

Remarks. — This peculiar form was at first described by Lepechin, as early as in the year 1778, under the name of *Oniscus cuspidatus.* In 1835 it was redescribed by Owen under another name, viz, *Acanthosoma hystrix,* and most subsequent authors have adopted the latter specific name, which however must cede to the much older one proposed by Lepechin. The external appearance of this animal is so highly characteristic, by its densely spinous armature, as to be at once distinguished from any of the other northern Amphipoda. In this respect it bears a perplexing resemblance to the above mentioned form described by the Rev. Mr. Stebbing from the Challenger Expedition under the name of *Acanthechinus tricarinatus.* The latter is, however, apparently generically distinct, and, among other characteristics, very markedly distinguished by the extremely slender and feeble gnathopoda. But in any case it cannot, in my opinion, be separated in a different family.

Occurrence. — I have myself only met with this interesting form on the coast of Finmark, where in some places it would seem to be rather common in moderate depths. A considerable number of specimens were thus collected, many years ago, by my late father and Dr. Danielssen in the Komagfjord, west Finmark, as also at Hammerfest and Vadso, where, moreover, at a still earlier date, it was found by Prof. Lovén. It has, however, recently been found in a very distant locality, viz., in the Trondhjemsfjord, where several specimens were collected from deep water by Mr. Storm, curator of the Museum in Trondhjem.

Distribution. — Arctic Ocean, widely distributed: Greenland (Kröyer), Arctic America (Owen), Spitsbergen (Goës), the Murman Coast (Jarzynsky), the White Sea (Lepechin), the Kara Sea (Hansen), the Siberian Polar Sea (Stuxberg), Labrador (Packard), Atlantic Coast of North America (Sidn. Smith).

Fam. 13. Iphimedidæ.

External appearance much as in the *Epimeridæ*. Cephalon produced in front to a deflexed rostrum, postantennal corners not projecting. Coxal plates well developed, the anterior pairs, as a rule, tapering to a point. Eyes distinct. Antennæ comparatively less slender than in the *Epimeridæ*, the superior ones, as a rule, the longer, and without any accessory appendage. Buccal area greatly projecting inferiorly, with the oral parts more or less prolonged and peculiarly modified to adapt them for a semiparasitic life. Gnathopoda rather unequal in structure and, as a rule, feeble, the anterior ones being always extremely slender, and often exhibiting an approach to a cheliform character. Pereiopoda normal, basal joint of the 3 posterior pairs laminarly expanded. Last pairs of uropoda with the rami narrowly lanceolate and edged with minute denticles. Telson unarmed, slightly incised at the tip.

Remarks. — The family is here taken in a somewhat more restricted sense than as done by Boeck, who referred to it, besides the 3 following genera, also the genus *Laphystius* of Kröyer, which latter I have found it necessary to keep apart, as the type of a distinct family. In their external appearance the forms belonging to the present family bear a considerable resemblance to those of the *Epimeridæ*, differing however very markedly both in the structure of the gnathopoda and especially in that of the oral parts. The peculiar modification of the latter organs seems to point to a semiparasitic nature of these animals, and although hitherto only a single species, *Ipimedia eblanæ* Sp. Bate, has been stated to be truly parasitic in habits, there is every reason to believe that also the other Iphimedidæ may, under certain circumstances, lead a semiparasitic life. The family comprises as yet but 3 genera, all of which are represented in the fauna of Norway.

Gen. 1. **Acanthonotosoma,** Boeck, 1876.

Syn: Acanthonotus, Owen.
,, Vertumnus, White.

Body more or less compressed, and distinctly carinated dorsally, the carina being, as a rule, elevated to posteriorly pointing projections. Cephalon with the rostrum rather large and evenly curved downwards, lateral corners small. The 3 anterior pairs of coxal plates rather narrow, and tapering to a point; 4th pair considerably larger and securiform in shape, outer part triangularly pointed; the 2 succeeding pairs of moderate size, with the posterior lobe deeper than the anterior. Eyes comparatively small. Superior antennæ with the peduncle rather elongated. Anterior lip narrowly prolonged and minutely incised at the tip; posterior lip with the lobes narrowly produced. Mandibles rather elongated, cutting part narrowly projected, and having on both mandibles a very narrow accessory lamella, molar expansion obsolete, palp slender. First pair of maxillæ with the masticatory lobe very obliquely truncated at the tip, and armed with short denticles, basal lobe triangularly pointed, and provided on the inner edge with numerous short setæ, palp comparatively small. Second pair of maxillæ with the outer lobe much larger than the inner, and obliquely truncated at the tip. Maxillipeds having the basal part broad and laminar, basal lobes nearly of same size as the masticatory ones, palp comparatively small, with the dactylus very minute. Anterior gnathopoda extremely slender and attenuated, monodactylous; posterior gnathopoda shorter and stouter than the anterior, and not subcheliform. Pereiopoda comparatively strong, basal joint of the 3 posterior pairs moderately expanded, and more or less produced at the infero-posteal corner. Last pair of uropoda with the inner ramus longer than the outer. Telson oblong oval in form, with the apical incision rather narrow.

Remarks. — This genus was at first established, in the year 1833 by Owen, to include the arctic species *A. cristata*, described in the sequel. As, however, the generic name he proposed, *Acanthonotus*, was already applied to a genus of fishes, it was subsequently changed by Mr. White to *Vertumnus*. Neither can this name, however, be admitted, since it has been given, at an earlier date, by Otto, to a genus of Turbellariæ. Under these circumstances, the generic name, *Acanthonotosoma*, proposed by Boeck in his great work, must be adopted, although it is somewhat uncomfortable from its length, being composed of no less than 7 syllables. The species belonging to this genus exhibit, in their external appearance, a considerable resemblance to those of the genus *Epimeria*, but may be easily distinguished by the greatly projecting buccal area, and by the peculiar structure of the gnathopoda. The genus comprises as yet but 3 species, 2 of which will be described in the sequel, the third being the *Acanthonotus inflatus* of Kröyer, which has not yet been recorded from the coast of Norway.

1. **Acanthonotosoma serratum**, (Fabr.).

(Pl. 131, fig. 1).

Oniscus serratus Fabricius, Fauna Grønlandiæ p. 262.
Syn.: Amphithoë serra, Kröyer.
,, Acanthonotus serra, M.-Edw.
,, Vertumnus serratus, Goës.

Body rather stout, with the back greatly curved, and distinctly carinated throughout the whole mesosome and metasome, the carina being, however, rather low in the 4 anterior segments, whereas in the remaining ones it is elevated into well-marked, though not very large, posteriorly curving projections, the last of which is somewhat laminar and obtuse at the tip. Urosome without any dorsal projection. Cephalon comparatively short, but rather deep, rostrum evenly curved and acuminate, reaching about to the end of the basal joint of the superior antennæ, lateral corners very small, and narrowly rounded at the tip, anterior edges between the latter and the rostrum evenly convex. Fourth pair of coxal plates with the outer part triangularly pointed, and having the anterior edge subangular below the middle, posterior projection of moderate size, and acute at the tip; the 2 succeeding pairs with the posterior lobe strongly deflexed and rather deep, but not acutely produced. Last pair of epimeral plates of metasome divided at the lateral corners into 2 slightly diverging, narrow lobes, the lower of which is coarsely serrated on the upper edge, and at the tip; the 2 preceding pairs terminating each in a simple dentiform corner, and being slightly serrated on their posterior edge. Eyes rather small, rounded oval in form, and somewhat narrowed in their upper part, pigment bright red. Superior antennæ about equalling $^1/_4$ of the length of the body, 1st joint of the peduncle considerably shorter than the other 2 combined, and not produced at the end to any dentiform projection, flagellum scarcely longer than the peduncle, and composed of about 15 articulations, each having anteriorly a dense fascicle of sensory bristles. Inferior antennæ considerably shorther than the superior, last joint of the peduncle scarcely attaining the length of the penultimate one, flagellum shorter than those joints combined. Anterior gnathopoda with the basal joint densely setous on both edges, propodos very narrow and shorter than the carpus, dactylus subulate, not dentated, but provided with several curved setæ, the outer of which is densely ciliated on the one edge. Posterior gnathopoda somewhat shorter but stouter than the anterior, and also more richly setous, propodos not nearly attaining the length of the carpus, dactylus very short and broad, sublaminar. Pereiopoda moderately strong, basal joint of the 3 posterior pairs rather broad, oval quadrangular in form, and having the infero-posteal corner produced to a triangular lobe. Last pair of uropoda with the inner ramus exceeding the outer by about $^1/_4$ of its length. Telson oblong oval in form, slightly tapering in its outer part, apical incision very short. Body whitish, banded transversely with a brillant crimson, the bands being, as a rule, rather narrow, 2 or 3 in each segment, and partly extending down the coxal plates and the basal joints of the posterior pairs of pereiopoda, Length of adult female reaching 12 mm.

Remarks. — This form was at first announced in the year 1780 by Otto Fabricius as *Oniscus serratus*, and subsequently redescribed by Kröyer under another name, viz., *Amphithoë serra.* It is the species first detected, and may therefore properly be regarded as the type of the genus. From the other 2 species, it is easily distinguishable by the somewhat different armature of the body, and more especially by the peculiar form of the last pair of epimeral plates of metasome. The colour of the living animal is very beautiful and characteristic, though to some extent variable.

Occurrence. — The species is not seldom met with on the whole Finmark coast in moderate depths, ranging from 10 to 50 fathoms, among algæ and Hydroida. I have also found it in some places on the west coast of Norway, rather plentiful, on rocky bottom, and Boeck states its occurrence as far south as Haugesund, where however it is very rare.

Distribution. — Arctic Ocean, widely distributed: Greenland (Fabr.), Iceland (Torell), Spitsbergen (Goës), the Barents Sea (Hoeck), the Murman Coast (Jarzynsky), the Kara Sea (Hansen), Labrador (Packard), Atlantic coast of North America (Sidn. Smith); coast of Bohuslän (Lovén).

2. **Acanthonotosoma cristatum,** (Owen).

(Pl. 131, fig. 2).

Acanthonotus cristatus, Owen, Append. to the 2nd Voyage of Ross, p. 9 90, Pl. B, fig. 8—12.
Syn.: Amphithoë cristata, M. Sars.
,, Vertumnus cristatus, Goës.

Body rather compressed, with the back strongly curved and distinctly carinated throughout, the carina of the 4 anterior segments rather conspicuous, though not forming any projections, that of the succeeding segments elevated to very strong laminar processes, acute at the tip; 1st segment of urosome with a similar strong dorsal projection. Cephalon about as in the preceding species. Fourth pair of coxal plates with the outer part falciform, and having the anterior edge evenly curved; posterior projection rather produced, though blunted at the tip; the 3 succeeding pairs each produced to a posteriorly curving acuminate point. Epimeral plates of metasome with the lateral corners, acutely produced, those of last pair greatly projecting, but quite simple, not bilobate. Eyes very small, rounded, pigment bright red. Superior antennæ scarcely longer than the inferior, 1st joint of the peduncle about the length of the other 2 combined, and, like the 2nd, produced at the end anteriorly to a dentiform projection, flagellum about the length of the peduncle, and densely setous on the anterior edge. Anterior gnathopoda nearly naked, propodos linear and about the length of the carpus, dactylus rather strong, being divided in its outer part into 7 strongly curved denticles, and having besides the usual partly-ciliated setæ. Posterior gnathopoda, as usual, somewhat more strongly built than the anterior, and provided in their outer part with fascicles of small setæ, propodos about the length of the carpus, dactylus of normal appearance, and rather curved. Pereiopoda somewhat stronger than in the preceding species, basal joint of the 3 posterior pairs oblong quadrangular in form, and produced at the infero-posteal corner to 2 acuminate projections, of which the outer is the larger. Last pair of uropoda with the inner ramus exceeding the outer by about $^1/_3$ of its length. Telson rather small, scarcely longer than it is broad, apical incision comparatively deeper than in the preceding species. Colour, according to Boeck, reddish white. Length of adult female 12 mm.

Remark. — This is the form upon which Owen founded his genus *Acanthonotus*. It is easily distinguishable from the preceding species by the much stronger development of the dorsal carina, and by the very large projections formed by it, as also by the rather different shape of the posterior pairs of coxal plates, and of the last pair of epimeral plates of metasome. Moreover the basal joint of the 3 posterior pairs of pereiopoda exhibit a rather different appearance by the 2 acuminate projections into which the infero-posteal corner is divided.

Occurrence. — The species seems to be very rare off the coast of Norway, and to be wholly restricted to the arctic region. I have myself only met with it in a single locality off the Lofoten Isles, where 2 specimens were collected, many years ago, from a depth of about 100 fathoms. A single specimen was moreover found by my late father in Komagfjord, west Finmark.

Distribution. — Arctic America (Owen), Spitsbergen (Goës), the Barents Sea (Hoek), the Kara Sea (Hansen).

Gen. 2. **Iphimedia,** Rathke, 1843.

Syn.: Microcheles, Kröyer.
„ Panoplæa, Thomson.

Body comparatively stout, with the back broadly rounded, and the posterior edge of some of the segments divided into acute lappets. Cephalon produced in front to a curved acuminate rostrum, lateral corners small, deflexed. Coxal plates nearly as in the preceding genus. Eyes well developed and rather large. Antennæ comparatively slender and subequal in length, peduncle of the superior ones rather short. Anterior and posterior lips comparatively broader than in the preceding genus, the latter having the lobes incised interiorly at a short distance from the tip. Mandibles less elongated, with the cutting edge but very slightly dentated and the secondary lamella larger, molar expansion wanting, palp comparatively strong. Maxillæ nearly as in *Acanthonotosoma*, though somewhat less elongated, and having the basal lobe shorter. Maxillipeds with the basal part rather narrow, masticatory and basal lobes well developed, palp comparatively large and densely setous, with the joints laminarly compressed, the 2nd forming interiorly a rounded expansion, dactylus wholly wanting. Both pairs of gnathopoda extremely slender, the anterior ones terminating in a complete though very small chela, the posterior ones imperfectly chelate, the propodos being produced at the end, below the insertion of the dactylus, to a broad, setous lobe, against which the latter is allowed to impinge. Pereiopoda of normal appearance, basal joint of the 3 posterior pairs rather broad, laminar. Last pair of uropoda with the rami narrowly lanceolate. Telson broadly incised at the tip.

Remarks. — The present genus was first established in the year 1843 by H. Rathke, to include the species «*obesa*», to be described below. With this, the Kröyerian genus *Microcheles* is undoubtedly identical, as also the genus *Panoplæa* established by Thomson to include a New Zealand species. The genus is chiefly characterised by the peculiar structure of the gnathopoda, both pairs of which are very slender and more or less distinctly cheliform. Moreover the acuminate lappets, into which the posterior edge of some of the segments are divided, give the species a rather characteristic appearance. Several species of this genus have been described by different authors from different parts of the Oceans, some of which, as *I. eblanæ* Sp. Bate, have turned out to be truly parasitic in habits. To the Norwegian fauna belong 2 distinct species, to be described in the sequel.

3. **Iphimedia obesa**, Rathke.

(Pl. 132).

Iphimedia obesa, Rathke, Acta Acad. Leop. T. XX, p. 85, Pl., fig.

Syn.: Microcheles armata, Kröyer.

Body rather robust of form, and somewhat tumid in its anterior part, with the posterior edge of the last segment of metasome and of those of metasome divided dorsally into 2 juxtaposed, acuminate lappets. Cephalon rather deep and about the length of the first 2 segments of mesosome combined, rostrum strongly curved, and reaching somewhat beyond the basal joint of the superior antennæ, lateral corners forming a short deflexed lappet, acute at the tip. The 3 anterior pairs of coxal plates rapidly increasing in size, and having the outer part somewhat curved, and tapering to a point; 4th pair about as deep as the preceding pair, but much broader, securiform in shape, outer part triangularly pointed, posterior projection rather produced; the 2 succeeding pairs with the posterior lobe deeper than the anterior, and subtruncated at the tip. Last pair of epimeral plates of metasome divided at the lateral corners into 2 triangular lappets of about equal size, and separated by a broad sinus. Eyes very large, reniform, pigment dark red, or purplish. Superior antennæ about equalling $^1/_3$ of the length of the body, 1st joint of the peduncle exceeding in length the other 2 combined, and produced at the end posteriorly to an acuminate projection, 2nd joint forming anteriorly a similar but smaller projection, flagellum nearly 3 times as long as the peduncle, and composed of about 24 articulations, each having anteriorly a fascicle of delicate sensory bristles, more strongly developed in the male. Inferior antennæ of nearly exactly same length as the superior, last joint of the peduncle longer than the penultimate one, flagellum about twice the length of the peduncle. First pair of maxillæ with the palp well developed, reaching considerably beyond the masticatory lobe. Maxillipeds with the 1st joint of the palp equalling in length the other 2 combined. Anterior gnathopoda extremely slender, and nearly naked, basal joint somewhat flexuous, propodos about the length of the 2 preceding joints combined, chela occupying $^1/_3$ of the length of the propodos, thumb scarcely broader than the dactylus, the latter slightly denticulated in its outer part. Posterior gnathopoda about the length of the anterior, but somewhat less slender, propodos nearly linear in form, and setous on both edges, thumb of the chela much broader than the dactylus. Basal joint of the 3 posterior pairs of pereiopoda oval quadrangular in form, infero-posteal corner nearly rectangular, in the last pair somewhat more acutely produced. Last pair of uropoda with the rami nearly equal in length. Telson oblong quadrangular in form, but little tapering distally, terminal lobes accuminate and diverging, apical incision nearly rectangular. Body whitish, with a faint yellowish tinge, each segment ornamented with numerous reddish-brown specks arranged in narrow transverse bands having between them a clear golden yellow pigment, the bands extending also down the coxal plates and the basal joints of the posterior pairs of pereiopoda, and being more numerous on the segments of metasome. Length of adult female reaching 12 mm.; that of male considerably less.

Remarks. — This form has been rather minutely described and figured by Rathke in the above-cited work, and it thus appears very strange that Kröyer could not recognize the species but described it as a new genus and species, under the name of *Microcheles armata.* The species in question, which may be regarded as the type of the present genus, seems to be very nearly related to the New Zealand form described by Thomson as *Panoplæa spinosa.* From the following Norwegian species it is easily distinguishable by its much larger size, and especially by the rather different form of the last pair of epimeral plates of metasome.

Occurrence. — Along the whole south and west coasts of Norway, this form is very commonly found, in moderate depths, ranging from 6 to 30 fathoms, especially on a bottom consisting of coarse sand and covered with stones overgrown with algæ. It extends northwards to the Lofoten Isles, and I have also met with it in a single locality off the Finmark coast, viz.. at Hammerfest.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), coast of France (Chevreux).

4. **Iphimedia minuta**, G. O. Sars.

(Pl. 133, fig. 1).

Iphimedia minuta, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 100, Pl. 5, fig. 2.
Syn.: Iphimedia eblanæ var., Stebbing.

In its external appearance very like *I. obesa*, but of much smaller size, and having the dorsal lobes comparatively larger than in that species. Rostrum strongly curved, and scarcely reaching beyond the basal joint of the superior antennæ. Coxal plates about as in *I. obesa*, though the 4th pair appear somewhat narrower. Last pair of epimeral plates of metasome divided at the lateral corners into 2 somewhat recurved projections, slightly serrated on the edges, and separated by a narrow sinus, the upper projection considerably larger than the lower. Eyes large, reniform, pigment dark red. Superior antennæ with the dentiform projection of the basal joint somewhat smaller than in *I. obesa* and less acute, flagellum scarcely more than twice the length of the peduncle, and composed of a smaller number of articulations. Mandibles having the cutting part comparatively more prolonged than in that species, and the secondary lamella considerably narrower, palp less robust. First pair of maxillæ with the palp very small, not even reaching to the end of the masticatory lobe. Maxillipeds with the 1st joint of the palp not nearly as long as the other 2 combined. Anterior gnathopoda having the propodos scarcely longer than the carpus, chela very minute, with the dactylus simple, not dentated. Posterior gnathopoda comparatively more strongly built than in *I. obesa*, propodos somewhat dilated in its distal part, and setous only along the outer half of the lower edge. Last pair of pereiopoda with the basal joint rather large, and produced at the infero-lateral corners to a sharp point, at some distance from which, there is, on the lower side, a small dentiform projection. Last pair of uropoda with the inner ramus considerably longer than the outer. Telson nearly as in *I. obesa*. Body very variable in colour, now banded transversely in the same manner as in *I. obesa*, now variegated with larger dark brownish shadows, sometimes very darkly coloured all over, nearly black. Length of adult female scarcely exceeding 5mm.

Remarks. — Though very like the type species as to external appearance, this form may, on a closer examination, be readily distinguished, not only by its much inferior size, and different colouring, but also by several well-marked structural details, the most conspicuous of which is the very different form of the last pair of epimeral plates of metasome. As shown by the above diagnosis and the appended figures, there are even to be found in the structure of the oral parts some very striking differences from the same parts in the type species. The form recorded by the Rev. Mr. Stebbing as *I. eblanæ var.* is undoubtedly identical with the species here treated of, and very different from the true *I. eblanæ* of Sp. Bate.

Occurrence. — I have met with this species not infrequently both off the south and west coasts of Norway, in comparatively shallow water among algæ, especially on rocky bottom, sloping steeply from the shore.

Distribution. — British Isles (Stebbing), Mediterranean at Spezia *and Messina* (the author).

Gen. 3. **Odius,** Lilljeborg, 1865.

Syn.: Otus, Sp. Bate.

Body highly compressed and keeled dorsally, with the integuments strongly incrusted. Cephalon produced in front to a deflexed rostrum, and having the lateral corners well developed. Coxal plates rather large, 4th pair having the outer part considerably expanded, and truncated at the tip. Eyes distinct. Antennæ very short. Anterior lip extremely narrow, and minutely bifid at the tip; posterior lip with the lobes acutely produced. Mandibles very slender, with the cutting part greatly prolonged, and acuminate at the tip, molar expansion distinct, though extremely small, palp slender and nearly naked. First pair of maxillæ with the masticatory lobe much elongated and tapering to an acute point, basal lobe comparatively small and narrow, palp quite rudimentary, only consisting of a single conical joint. Second pair of maxillæ with both lobes rather narrow and obliquely truncated at the tip.

Maxillipeds nearly of same structure as in the genus *Acanthonotosoma,* though having the masticatory lobes comparatively larger. Gnathopoda very unequal, the anterior ones being extremely slender, and terminating with a minute chela, whereas the posterior ones are rather robust and subcheliform, the propodos being considerably expanded, and having a distinctly defined palm. Pereiopoda very strongly built and nearly of equal length, basal joint of the 3 posterior pairs laminarly expanded. Last pair of uropoda with the rami very unequal in length. Telson oblong, minutely incised at the tip.

Remarks. — This genus was established by Sp. Bate as early as in the year 1862, but as the generic name he proposed was already appropriated in Ornithology, Lilljeborg changed it to *Odius.* The genus, though evidently belonging to the same family, is well defined from the 2 preceding ones, both by the external appearance and by several structural details, especially as regards the oral parts and the posterior gnathopoda, The genus comprises as yet but a single species, to be described in the sequel.

5. **Odius carinatus,** (Sp. Bate).

(Pl. 133, fig. 2).

Otus carinatus, Sp. Bate. Catal. of Amphip. in the British Mus., p. 126, Pl. XXIII, fig. 2.

Body very short and stout, highly compressed, and distinctly carinated throughout the whole mesosome and metasome, the carina, however, not being elevated to dorsal projections, except on the 2 last segments, anterior projection obtusely rounded, posterior acute and erect. Cephalon comparatively short, rostrum acute and perpendicularly deflexed, reaching considerably beyond the basal joint of the superior antennæ, lateral corners forming, on each side, a rather large triangular lobe. First pair of coxal plates tapering to an obtuse point; the 2 succeeding pairs narrowly truncated at the tip; 4th pair rather large, with the anterior edge nearly straight, and the posterior projection rather produced and acuminate; the 2 succeeding pairs having the posterior lobe truncated at the tip. Last pair of epimeral plates of metasome biangular at the lateral corners, inferior angle but little produced, superior one jutting out as a recurved acute projection defined above by a deep sinus. Eyes of moderate size, reniform, pigment red. Superior antennæ scarcely attaining the length of the cephalon and the 1st segment of mesosome combined, 1st joint of the peduncle simple, and about as long as the other 2 combined, flagellum much shorter than the peduncle, and composed of 7 articulations only, the outer 3 of which are very small and clothed with long sensory filaments. Inferior antennæ still shorter than the superior, with the flagellum extremely small, scarcely exceeding in length the last peduncular joint. Anterior gnathopoda with the basal joint rather thick in its proximal part, outer part of the leg extremely slender, and nearly naked, carpus narrow and elongated, propodos much shorter, and somewhat curved, with the chela extremely small, though normally developed. Posterior gnathopoda rather strongly built, carpus comparatively short and, like the meral joint, produced at the end inferiorly to a narrow lobe, propodos very large and broad, triangular in form, with the palm nearly transverse, and finely denticulated. Pereiopoda rather short and stout, with the meral joint produced at the end to a narrow acuminate projection reaching, on the posterior pairs, beyond the carpal joint, dactylus in all strong and curved, basal joint of the 3 posterior pairs quadrangular in form, infero-posteal corner broadly emarginated at the tip, or slightly bilobate. Last pair of uropoda with the outer ramus scarcely more than half as long as the inner, and also much narrower. Telson rather prolonged, more than twice as long as it is broad, outer part tapering, tip minutely incised. Colour rather variable, now whitish, now variegated with irregular dark brown shadows, which sometimes occupy the whole anterior part of the body. Length of adult female scarcely exceeding 5 mm.

Remarks. — This is a very distinct and easily recognizable form, differing, as it does, rather markedly from the other *Iphimididæ*, both as to external appearance and in some of the structural details, though evidently belonging to that family, as first pointed out by Boeck. The latter author has however fallen into a strange error as regards the gnathopoda, which have been confounded in such a manner, that the posterior ones are described as the anterior, and *vice versa.*

Occurrence. — Though nowhere in any abundance, I have met with this form in several places, both off the Finmark coast, and off the west and south coasts of Norway as far as the Christianiafjord. It is generally found in moderate depths, on rocky bottom, among algæ and Hydroida, but always quite solitary.

Distribution. — Shetland Isles (Sp. Bate), Arctic America (Torell), Greenland (Hansen), Spitsbergen (Goës).

Fam. 14. Laphystiidæ.

Body more or less depressed, with thin and flexible integuments. Cephalon produced in front to a flattened horizontally projected rostral expansion covering the bases of the superior antennæ, lateral corners obsolete. Coxal plates not very deep, sometimes very small. Last pair of epimeral plates much narrower, and also less deep, than the preceding pairs. Eyes distinct or imperfectly developed. Antennæ very unequal, the superior ones being much the larger, and having no accessory appendage. Oral parts somewhat differing in the various genera. Gnathopoda small, simple, or with an approach to a subcheliform character. Pereiopoda more or less powerfully developed, with hook-like dactylus, basal joint of the 3 posterior pairs laminarly expanded. Last pair of uropoda more or less differing from the preceding pairs. Telson squamiform, entire. Sexual difference very slight.

Remarks. — I have found it necessary to establish this new family in order to include the very anomalous genus *Laphystius* of Kröyer, which, in my opinion, was wrongly referred by Boeck to the *Iphimedidæ*, differing, as it does, rather markedly both in external appearance and in several anatomical characteristics. To this genus is now for the first time added another very remarkable genus, *Laphystiopsis*, which exhibits several characteristics in common with *Laphystius*, from which in other particulars it differs rather strikingly.

Gen. 1, **Laphystius**, Kröyer, 1842.

Syn.: Darwinia, Sp. Bate.
,, Ichthyomyzocus, Hesse.

Body distinctly depressed, with the back evenly vaulted throughout. Cephalon rather broad in its posterior part, and having the rostral expansion somewhat tapering distally. The 3 anterior pairs of coxal plates of normal appearance; 4th pair much deeper than the preceding pairs; the 2 succeeding ones with the posterior lobe produced below. Eyes distinct, prominent. Superior antennæ of moderate length and very strongly built, with the flagellum only composed of a limited number of articulations. Buccal area rather projecting below. Anterior lip tapering distally to an obtuse point; posterior lip rather large and without any inner lobes. Mandibles very strong, with, the cutting part prolonged and exserted to a narrow, strongly-dentated plate, inside which there is a secondary lamella differently shaped in the two mandibles, molar expansion wanting, palp very large. First pair of maxillæ with the palp quite rudimentary, nodiform, basal lobe not very large, trisetose. Second pair of maxillæ with the outer lobe considerably larger than the inner. Maxillipeds short and broad, laminar, basal lobes narrow, masticatory lobes very large, palp extremely small, biarticulate. Gnathopoda rather unequal in structure, the anterior ones being very feeble and simple, the posterior ones much stronger and imperfectly subcheliform. Pereiopoda very strong and subequal in length, propodal joint in all rather large and swollen, dactylus extremely powerful, hook-shaped. Branchial lamellæ small. Uropoda nearly naked, last pair but slightly differing from the preceding pairs. Telson rather small, rounded at the tip.

Remarks. — This genus was established by Kröyer as early as in the year 1842, to include a peculiar Amphipod found by him, parasitic, on the skin of the common sturgeon. The genus *Darwinia* of Sp. Bate is undoubtedly identical with the Kröyerian genus, and this evidently is also the case with the genus *Ichthyomyzocus* of Hesse. The latter author describes and figures no less than 4 different species, one of which may be that upon which Kröyer founded his genus. There would thus seem to exist at least 4 different species belonging to this genus. All the species live as true parasites on the skin of several kinds of fish, to which they cling firmly by the aid of the strong hook-like dactyli of the pereiopoda. To the fauna of Norway belongs, as yet, only a single species, to be described in the sequel.

1. **Laphystius sturionis**, Kröyer.

(Pl. 134).

Laphystius sturionis, Kröyer, Nat. Tidsskr. 1 R. Bd. IV, p. 157.

Syn.: Darwinia compressa, Sp. Bate.

„ Ichthyomyzocus morrhuæ, Hesse.

Body rather stout, with the back quite smooth and broadly vaulted. Cephalon comparatively small, depressed, rostral expansion narrowly truncated at the tip, and reaching about to the end of the basal joint of the superior antennæ. The 3 anterior pairs of coxal plates successively increasing in size, all rounded quadrangular in form, and about as deep as the corresponding segments; 4th pair very unlike the preceding pairs, nearly twice as deep, and having the outer part acutely triangular; the 2 succeeding pairs having the posterior lobe produced to an accuminate deflexed projection. Last pair of epimeral plates comparatively rather small and narrow, with the lateral corners obtuse-angled; those of the 2 preceding pairs produced to a short recurved point. Urosome much flattened and considerably instricted at the base. Eyes of moderate size, rounded, and placed each within a lateral nodiform prominence of the cephalon, pigment very dark. Superior antennæ scarcely exceeding in length $^1/_4$ of the the body, joints of the peduncle rather tumefied and nearly equal in size, flagellum about the length of the peduncle, and composed of only 9 articulations successively diminishing in breadth, and each having, anteriorly, a dense fascicle of delicate sensory bristles. Inferior antennæ much smaller than the superior and not nearly so thick, last joint of the peduncle longer than the penultimate one, flagellum somewhat exceeding the peduncle in length, and composed of 8 articulations. Anterior gnathopoda very feeble and nearly naked, being generally strongly folded, propodos narrowly oblong in form, and exceeding in length the carpus, dactylus rather elongated, but of very feeble consistency, nearly membranous. Posterior gnathopoda scarcely longer than the anterior, but considerably stronger, propodos about same size as the carpus, and nearly quadrangular in form, inferior edge terminating in an angular projection, dactylus rather broad and somewhat curved, being provided anteriorly by several small bristles, its tip bidentate. All the pereiopoda extremely strong, with the propodal joint much swollen, and, in the 2 anterior pairs, equalling in length the 3 preceding joints combined, dactylus strongly curved, and terminating in a sharp point, basal joint of the 3 posterior pairs oval quadrangular in form, that of last pair somewhat broader than in the 2 preceding pairs, and having the infero-posteal corner angularly produced. Last pair of uropoda with both rami quite naked, sublinear in form, and terminating in an obtuse point, inner ramus considerably larger than the outer. Telson rounded oval in form, edge evenly curved throughout. Colour, according to the statement of Kröyer, whitish. Length of adult female 7 mm.

Remarks. — The present remarkable form was first described by Kröyer under the above name, and subsequently recorded by Sp. Bate under another name, viz., *Darwinia compressa.* On the identity of both there cannot exist any doubt whatever. Among the 4 species of the genus *Ichthyomyzocus* of Hesse, that named *I. morrhuæ* is in all probability identical with the present species. Judging from the figures given by that author of the several species, the present form is prominently distinguished from the other 3 by its much shorter and stouter form of body.

Occurrence. — I have myself only met with a single, quite young specimen of this form, which was taken in the Trondhjemsfjord from the skin of a living *Raja batis.* Boeck records it from the south coast of Norway and states its occurrence on different kinds of fish, such as the sturgeon, sharks and codfish. There are, however, no specimens to be found either in his collections or in our University Museum, and I have thus been obliged to draw the accompanying figures from specimens collected on the Danish coast and kindly sent me by Dr. Hansen.

Distribution. — British Isles (Sp. Bate), Kattegat (Kröyer), Bohuslän (Bruzelius), coast of France (Chevreux).

Gen. 2. **Laphystiopsis**, G. O. Sars, n.

General form of body somewhat resembling that in the genus *Laphystius*, being distinctly depressed. Cephalon produced in front to a broad spatulate lamella covering the bases of the antennæ. Coxal plates very small, none of them angularly produced. Epimeral plates of metasome much as in *Laphystius*. Eyes quite rudimentary. Both pairs of antennæ very slender and elongated, the superior ones much the longer. Buccal area but little projecting below, and having the oral parts feebly developed. Anterior lip very broad, transverse, with a small incision in the middle of the terminal edge; posterior lip with distinct, though small inner lobes. Mandibles not very strong, cutting part but little projected, and obliquely truncated at the regularly-dentated tip, molar expansion distinct, flap-shaped, palp very slender. First pair of maxillæ with the palp rather large, though only composed of a single joint, masticatory lobe comparatively narrow, with few apical spines, basal lobe small, unisetose. Second pair of maxillæ very small, with the lobes nearly equal-sized. Maxillipeds of normal appearance, though rather small, both the basal and masticatory lobes poorly developed, palp of the usual structure, 4-articulate. Both pairs of gnathopoda quite simple and of the very same structure, but little differing in their appearance from the 2 anterior pairs of pereiopoda. The latter comparatively less strong than in *Laphystius*, the 3 posterior pairs successively increasing in length, and having the basal joint laminarly expanded. Branchial lamellæ rather large. Uropoda with the rami lanceolate and edged with small denticles, last pair rather differing from the preceding pairs, having the basal part very short, and the rami more foliaceous in character. Telson simple, squamiform.

Remarks. — As seen from the above diagnosis, the present new genus exhibits some very striking differences from the genus *Laphystius*, especially as regards the structure of the oral parts and the gnathopoda. But in other respects it is evidently nearly related to that genus, and ought therefore, in my opinion, to be placed in the same family. It comprises, as yet, only a single species, to be described in the sequel.

2. **Laphystiopsis planifrons**, G. O. Sars, n. sp.

(Pl. 135).

Body comparatively slender, and distinctly depressed in its anterior part, with the segments sharply defined by rather deep transverse depressions; last segment of metasome provided dorsally with a compressed gibbous projection, 1st segment of urosome having posteriorly a similar dorsal projection, in front of which there is a deep saddle-shaped depression. Cephalon much depressed, and produced in front to a very large horizontally projected spatulate lamella, broadly truncated at the tip, and reaching beyond the 2nd peduncular joint of the superior antennæ, the lateral edges of the lamella being continued behind, on each side of the cephalon, as a distinct longitudinal ridge. Coxal plates extremely small and non-contiguous, increasing somewhat in size to the 5th pair, which are the largest and, like the succeeding pair, slightly bilobular, being fully twice as broad as they are deep; 4th pair not differing at all in shape from the 3rd. Last pair of epimeral plates of metasome much narrower, and also less deep, than the preceding pair, lateral corners evenly rounded. Eyes quite rudimentary, and replaced, on each side, by an irregular patch of a reddish pigment, without any traces of visual elements, but partly coated with a chalky white substance. Superior antennæ nearly half as long as the body, 1st joint of the peduncle much the largest and rather broad, though not attaining the length of the other 2 combined, 3rd joint scarcely more than half as long as the 2nd, flagellum very slender, more than 3 times as long as the peduncle, and composed of about 24 articulations, the 1st of which is much the largest and provided anteriorly with 4 fascicles of delicate sensory bristles. Inferior antennæ considerably shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum about twice the length of the peduncle. Gnathopoda very small and exactly alike, propodos simple cylindric, somewhat curved, and about same length as the carpus, dactylus strong, hook-shaped. The 2 anterior pairs of pereiopoda somewhat larger than the gnathopoda, exhibiting otherwise a rather similar aspect, though the mutual relation of the meral and carpal joints is, as usual, somewhat different, basal joint of both pairs rather broad, sublaminar. The 3 posterior pairs of pereiopoda comparatively more slender and rapidly increasing in length, the last pair being rather elongated, with the basal joint considerably expanded and rounded oval in form. Last pair of uropoda with the rami nearly equal-sized, both being lanceolate compressed and terminating in a sharp point. Telson nearly semicircular, being about as long as it is broad at the base, edges evenly curved throughout. Colour whitish, without any perceptible pigmentary ornamentation. Length of adult female 8 mm.

Remarks. — The most prominent external characteristic of this remarkable Amphipod, is unquestionably the peculiar spatulate frontal plate covering the bases of the antennæ. It is thereby easily recognizable from any other of the hitherto known northern Amphipoda, though *Laphystius sturionis* is the form that comes nearest to it also in this respect.

Occurrence. — I have met with this interesting form in 3 widely distant localities on the Norwegian coast, viz., at Hvalöer in the outer part of the Christianiafjord, in the Trondhjemsfjord, and at Selsøvig on the Nordland coast. In all 3 localities it was taken by the dredge, together with other deep-water animals, from a very considerable depth, ranging from 100 to 400 fathoms. Thus whether in reality it leads, like *Laphystius*, a semi-parasitic life, or not, still remains an open question.

Fam. 15. Syrrhoidæ.

Body of rather various shape, now comparatively slender, now robust, but always having the metasome and urosome well developed. Cephalon produced in front to a deflexed rostrum of various shape, and defined from the lateral edges by a deep sinus. Coxal plates small, or of moderate size, 4th pair, as a rule, smaller than the preceding ones. Eyes, when present, coalescent as in the *Œdiceridæ*. Antennæ more or less slender, with elongated peduncles, the superior ones being, as a rule, shorter than the inferior and provided with a distinct accessory appendage; both pairs in male peculiarly modified. Oral parts well developed, the mandibles being particularly strong. Both pairs of gnathopoda, as a rule, very feeble and subequal in structure, having the carpus elongated, and the propodos very small, now subcheliform, now simple. Pereiopoda normal. Last pair of uropoda more or less differing from the preceding pairs. Telson greatly elongated, entire or cleft.

Remarks. — This family, corresponding with the subfamily *Syrrhoinæ* of Boeck, is a very natural one, differing, as it does, in several respects rather markedly, from the other Amphipodous families. In a few points, especially as regards the structure of the eyes, it exhibits a remote resemblance to the *Œdiceridæ*, but is otherwise very different. As justly pointed out by Boeck, its affinity to another apparently very different family, viz., that of the *Pardaliscidæ*, is in fact much greater, and it is therefore placed here immediately in front of that family. Perhaps however it comes still nearer to another family, not represented in the fauna of Norway, viz., the *Synopiidæ*. The family comprises as yet but 4 genera, all of which are represented in the fauna of Norway. One of these genera, *Syrrhoites*, is now for the first time established.

Gen. 1. **Syrrhoë**, Goës, 1865.

Body comparatively slender, with rather thin integuments. Cephalon strongly vaulted in front, and produced to a sharp rostrum curving down between the bases of the superior antennæ. Coxalplates comparatively small, 3rd pair much the largest, and greatly expanded in their outer part; 4th pair very poorly developed. Posterior edge of the segments of metasome more or less distinctly serrated. Eyes completely coalescent, and placed within the dorsal part of the cephalon, as in the *Œdiceridæ*. Antennæ comparatively slender, the inferior ones in male greatly elongated. Anterior lip moderately broad, and scarcely insinuated at the tip; posterior lip with the lateral lobes greatly expanded. Mandibles short and stout, with the cutting edge distinctly dentated, and the molar expansion of normal structure, palp slender, with the last joint very small, and provided with long curved setæ. First pair of maxillæ with the palp well developed, masticatory lobe transversely truncated at the tip, and armed with strong denticulated spines, basal lobe of moderate size, and edged with several plumose setæ. Second pair of maxillæ comparatively small, with the lobes short and subequal. Maxillipeds not very large, masticatory lobes of moderate size, and armed along the inner edge with curved spines, assuming at the tip successively the character of strong setæ, palp comparatively short and stout, with the 3rd joint expanded distally, and the terminal one unguiform. Gnathopoda very slender and feeble in structure, the posterior ones more elongated than the anterior, propodos in both distinctly subcheliform, with the palm transverse, and armed with a single, very strong, denticulated spine, which forms, as it were, a kind of thumb against which the dactylus is allowed to impinge. The 2 anterior pairs of pereiopoda extremely slender, though considerably shorter than the 3 posterior pairs, which rapidly increase in length, and have the basal joint considerably expanded and more or less strongly serrated along the posterior edge. The 2 anterior pairs of uropoda subequal in structure, with both rami narrow linear in form, the outer being much shorter than the inner; last pair with the rami less unequal and narrowly lanceolate in shape, the outer with a small terminal joint. Telson more or less elongated and deeply cleft.

Remarks. — The present genus, which may be considered as the type of the family *Syrrhoidæ*, was established by Goës in the year 1865, to include 2 species, one of which, however, had been described by Prof. Lilljeborg at a somewhat earlier date as the type of a separate genus, *Tiron*. Among the several characteristics distinguishing the present genus from the succeeding ones, may be named the comparatively slender form of the body, the large confluent eyes, and the very peculiar form of the 3rd pair of coxal plates.

In addition to the typical species described in the sequel, Boeck records another species from the Norwegian coast, under the name of *S. lævis.* I have not, however, seen any specimens of this form, and as the description given is rather incomplete, being, in some points, not even in accordance with the generic characters, and as, moreover, no figures at all are reproduced, I find it best, at present, altogether to omit this form. Of exotic forms, 2 well-defined species have been described by the Rev. Mr. Stebbing from the Challenger Expedition, viz., *S. papyracea* and *S. semiserrata.*

1. **Syrrhoë crenulata,** Goës.

(Pl. 136).

Syrrhoë crenulata, Goës, Crust. Amph. maris Spetsb., p. 11, fig. 25.

Body moderately slender, and nearly cylindrical in form, with the posterior edge of last segment of mesosome and those of metasome coarsely crenulated or serrated. Cephalon about the length of the first 3 segments of mesosome combined, and rather broad in its posterior part, front strongly vaulted, with the rostrum perpendicularly deflexed and reaching beyond the middle of the basal joint of the superior antennæ, lateral corners but little projecting, though acute at the tip. The first 2 pairs of coxal plates very narrow and curving somewhat anteriorly, with the tip transversely truncated; 3rd pair very much expanded distally, nearly securiform, the posterior edge being deeply emarginated in its upper part to receive the 4th pair, and produced below the emargination to a narrowly truncated lobe; 4th pair extremely small, and somewhat curved; the 2 succeeding pairs slightly bilobed, with the posterior lobe the larger. Penultimate pair of epimeral plates of metasome produced at the lateral corners to a sharp recurved point; those of last pair nearly rectangular, with the posterior edge strongly curved in its upper part, and throughout coarsely serrated. Eyes completely coalesced, forming a single large mass just within the dorsal face of the cephalon, visual elements very numerous, pigment dark red. Superior antennæ in female about equalling in length $^1/_3$ of the body, 1st joint of the peduncle scarcely longer than the 2nd, but much thicker, and produced at the end posteriorly to a dentiform projection, last joint somewhat shorter than the 2nd, flagellum a little longer than the peduncle, and very slender, being composed of about 18 articulations, accessory appendage extremely narrow, and 3-articulate, with the last joint very small. Same antennæ in male considerably more elongated, and having the 1st joint of the flagellum very large, and densely clothed with sensory hairs, accessory appendage much larger than in female, and having the 1st joint somewhat laminar. Inferior antennæ in female a little longer than the superior, the last 2 joints of the peduncle much prolonged and finely hairy at the edges, flagellum about half the length of the peduncle; those of male attaining the length of the whole body, flagellum very slender, filiform, and composed of numerous short articulations. Anterior gnathopoda with the propodos scarcely half as long as the carpus, and oblong triangular in form, gradually expanding distally, palm well defined and, like the tip of the propodos in front of the insertion of the dactylus, densely clothed with extremely delicate bristles. Posterior gnathopoda considerably more elongated, and having the propodos longer and narrower. Basal joint of the 3 posterior pairs of pereiopoda considerably expanded, and coarsely serrated along the hind edge, that of last pair much the largest, and subrhomboidal in form. Last pair of uropoda with the inner ramus a little longer than the outer, both setous on the inner edge. Telson much elongated, and lanceolate in form, cleft extending considerably beyond the middle, terminal lobes pointed, and each having exteriorly, near the tip, a small bristle. Body of somewhat variable colour, being more or less densely variegated with yellow, white, and pink, coxal and epimeral plates, as also the basal joint of the 3 posterior pairs of pereiopoda generally tinged with a beautiful coral-red; antennæ and legs banded with reddish orange. Length of adult female reaching 10 mm.; that of male considerably less.

Remarks. — This form cannot be confounded with any other of the northern Amphipoda, being prominently distinguished, both by its general habitus and by the structure of the several appendages. From the 2 exotic species mentioned above, it distinguishes itself conspicuously by the form and armature of the last pair of epimeral plates of metasome, as also by the strongly serrated edges of the posterior segments.

Occurrence. — Of the coast off Norway, this form is far from being rare, occurring, as it does, from the Christianiafjord up to Vadsø. I have collected it in numerous localities, sometimes even in great abundance, from depths ranging from 80 to 100 fathoms. It is also occasionally met with in less great depths up to 20 fathoms, but may on the whole be regarded as a true deep-water form.

Distribution. — Greenland (Hansen), Spitsbergen (Goës).

Gen. 2. **Syrrhoites,** G. O. Sars, n.

Body comparatively stout and somewhat compressed, with strongly incrusted integuments, and some of the segments elevated dorsally to triangularly-pointed projections. Cephalon large and deep, produced in front to an acute, deflexed rostrum, lateral parts, as it were, swollen, and forming a broad lobe quite concealing the base of the inferior antennæ. Coxal plates comparatively small and narrow; 3rd pair not expanded distally; 4th pairs less deep than the former, and triangularly pointed below. Epimeral plates of metasome very large. Eyes wholly absent. Antennæ less slender than in *Syrrhoë*, and nearly equal-sized in female. Anterior lip short and broad, transversely truncated at the tip; posterior lip with the lateral lobes insinuated near the tip. Mandibles extremely stout and compact, cutting part conically produced, and not at all dentated, molar expansion replaced by a very broad transverse triturating surface, palp extremely minute and slender, though composed of the 3 usual joints. Maxillæ nearly as in *Syrrhoë*. Maxillipeds with the masticatory lobes very broad, and armed with a row of extraordinarily strong spines, palp slender, with the 3rd joint linear, dactylus small. Gnathopoda nearly exactly alike, both in size and structure, both pairs very feeble, with the propodos extremely small, and imperfectly subcheliform, the palm being very oblique and wanting the strong denticulated spine present in *Syrrhoë*. The 2 anterior pairs of pereiopoda extremely slender and feeble; the 3 posterior pairs much stronger and successively increasing in length, basal joint rather expanded. Uropoda nearly as in *Syrrhoë*. Telson deeply cleft.

Remarks. — The present new genus is founded upon the form described by the author, at an earlier date, as *Bruzelia serrata*. On a closer comparison of the several genera of this family, I have however found that the above-named form, though in its outer appearance somewhat resembling the species of the genus *Bruzelia*, yet differs in some points very markedly, and ought therefore more properly to be regarded as the type of a separate genus, somewhat intermediate in character between the genera *Syrrhoë* and *Bruzelia*. From the latter genus it is especially very prominently distinguished by the structure of the telson, which is not entire as in that genus, but deeply cleft as in *Syrrhoë*. In the structure of the gnathopoda and partly also in that of the oral parts it somewhat differs from both these genera. The genus comprises as yet but a single species, to be described in the sequel.

2. **Syrrhoites serrata**, G. O. Sars.

(Pl. 137).

Bruzelia serrata, G. O. Sars, Crust. & Pycnog. nova in itinere 2do et 3tio Exp. Norv. collecta, No. 24.

Body rather short and stout, and somewhat angular in outline, with the back distinctly carinated throughout, the carina being elevated on the 4 posterior segments of mesosome to simple, triangularly-pointed projections successively increasing in size, on each of the segments of metasome to 2 successive points, the posterior of which is the larger, and somewhat upturned on the last segment. Segments of urosome likewise produced dorsally, but in a somewhat different manner in the two sexes; 1st segment in female with 2 successive projections, in male with only a single one; dorsal projection of 2nd segment in male much larger than in female, and strongly deflexed. Metasome very powerfully developed, being, in female, fully as long as the mesosome, in male, considerably longer. Cephalon about the length of the first 4 segments of mesosome combined, its upper contour forming a perfectly even curve until the tip of the rostrum, the latter nearly perpendicularly deflexed, and reaching a little beyond the basal joint of the superior antennæ, lateral parts separated from the rostrum by a deep and narrow sinus. The 3 anterior pairs of coxal plates not fully as deep as the corresponding segments, and narrowly quadrangular in form, with the tip transversely truncated; 4th pair somewhat less deep, and triangularly pointed at the tip, posterior edge very slightly emarginated in its upper part; the 2 succeeding pairs but little broader than they are deep, posterior lobe somewhat deflexed, and narrowly rounded at the tip. First pair of epimeral plates of metasome evenly rounded, 2nd pair considerably deeper, and produced at the lateral corners to a short recurved point, last pair produced to a much coarser spiniform projection defined above by a deep sinus, posterior edge strongly curved, and divided into 5 coarse, recurved denticles. Eyes wholly absent, not even the slightest trace of any replacing pigment being observed in the living animal. Superior antennæ in female scarcely exceeding $^1/_4$ of the length of the body, 1st joint of the peduncle but little longer than the 2nd, which about equals in length the 3rd, flagellum not attaining the length of the peduncle, and composed of 9 articulations only, accessory appendage rather small, biarticulate. Same antennæ in male much more fully developed, having the 1st joint of the flagellum very large, and densely clothed with long and delicate sensory bristles, accessory appendage likewise much larger than in female. Inferior antennæ in the latter scarcely longer than the superior, last joint of the peduncle a little shorter than the penultimate one, flagellum about half the length of the peduncle; those of male much more elongated, though not attaining the length of the body. Gnathopoda very small, exactly alike, and setous at the edges, carpus rather elongated, propodos scarcely half its length, and oblong oval in form, with the inferior edge forming, above the middle, an obtuse angle, below which occur 2 successive simple spinules, dactylus rather short and distinctly biarticulate. The 3 posterior pairs of pereiopoda much stronger than the 2 anterior, and rapidly increasing in length, basal joint regularly oval and distinctly serrated on the hind edge, propodal joint of the latter pairs much elongated and very slender. Last pair of uropoda reaching somewhat beyond the preceding pairs, rami narrow lanceolate and nearly subequal in length, terminal joint of the outer ramus comparatively short. Telson rather large, oblong triangular in form, more than twice as long as it is broad, outer part evenly tapering, cleft extending far beyond the middle, terminal lobes bidentate at the tip. Colour yellowish grey, without any pigmentary ornament. Length of adult female 8 mm., of male about the same.

Remarks. — As mentioned above, this form was at first described by the author under the name of *Bruzelia serrata,* from a few female specimens collected during the Norwegian North Atlantic Expedition. I have subsequently found it, in both sexes, on the Norwegian coast, and a redescription of the species would thus seem to be not inappropriate. The peculiar jagged upper contour of the body will suffice to distinguish this form at once from any of the other *Syrrhoidæ.*

Occurrence. — I have met with this interesting form in 4 different localities of the Norwegian coast, viz., in the Korsfjord, south of Bergen, in the Trondhjemsfjord, at Selsøvig on the Nordland coast, and on the Lofoten Isles. It occurred in all these localities rather sparingly, in a very great depth, ranging from 150 to 300 fathoms. The specimens procured during the Norwegian North Atlantic Expedition were collected west of the Helgeland coast, from a depth of 350 fathoms (cold area). Out of Norway it has not yet been recorded.

Gen. 3. **Bruzelia,** Boeck, 1870.

Body comparatively stout and very broad, with strongly incrusted integuments. Cephalon large, and produced in front to a variously formed rostrum, lateral parts much expanded. Coxal plates resembling those in *Syrrhoites.* Metasome well developed; urosome short and depressed. Eyes rudimentary and replaced by an irregular patch of pigment, without any trace of visual elements. Superior antennæ about as in *Syrrhoites*; inferior ones longer than the former, and very elongated and slender in the male. Oral parts somewhat resembling those in *Syrrhoites.* Anterior lip, however, comparatively larger, and having along the middle a projecting keel; inferior lip with the lateral lobes not insinuated at the tip. Mandibles of a similar compact form to that in *Syrrhoites*, but having the cutting part less prominent and obscurely dentated, molar expansion more distinctly defined, palp less rudimentary. First pair of maxillæ nearly as in the said genus; 2nd pair with the outer lobe much narrower than the inner. Maxillipeds of normal appearance, masticatory lobes of moderate size, and provided with the usual slender spinules. Gnathopoda very feeble and slightly unequal, the posterior ones being more slender than the anterior, propodos small, slightly expanded in the middle, palm oblique and provided with a similar strong denticulated spine as in *Syrrhoë.* The 2 anterior pairs of pereiopoda very slender; the 3 posterior pairs much stronger, and less unequal than in the 2 preceding genera, the last pair being scarcely longer than the penultimate one. Uropoda rather dissimilar in structure; 1st pair with both rami very narrow; 2nd pair having the basal part extremely short, and the inner ramus of unusual size, broadly lanceolate and naked; last pair comparatively small, with the rami very narrow and in female nearly naked, terminal joint of outer ramus spiniform. Telson oblong triangular or broadly lanceolate in form, and entire, without any cleft.

Remarks. — This genus, established by Boeck, bears a considerable resemblance to the preceding genus, but is very prominently distinguished by the rather different structure of the uropoda and of the telson. Also in the structure of the oral parts there are to be found some differences apparently of generic value. Moreover the gnathopoda are distinguished by the presence of a thumb-like spine exactly similar to that in the genus *Syrrhoë.* The genus comprises 2 very distinct species, to be described in the sequel.

3. **Bruzelia typica,** Boeck.

(Pl. 138, Pl. 139, fig. 1.)

Bruzelia typica, Boeck. Crust. amph. bor. & arct. p. 70.

Body extremely broad, subdepressed, and angular in transverse section, the back being vaulted in a roof-like manner, and the lateral parts of the segments exstant, forming an abrupt angle with the coxal plates. Mesosome not carinated, metasome, on the other hand, distinctly keeled dorsally, the keel being produced at the end of its last segment to an acuminate, somewhat upturned projection. Urosome in female smooth above, in male armed with 2 small dorsal projections, the anterior of which, issuing from the 2nd segment, is abruptly deflexed and narrow linguiform in shape, terminating in 2 small bristles. Metasome much more powerfully developed in male than in female. Cephalon very large, and much dilated in its posterior part, upper contour nearly straight and horizontal, rostrum of somewhat unusual form, having its outer part abruptly deflexed and obtusely rounded at the tip, which does not extend to the end of the basal joint of the superior antennæ, lateral lobes of cephalon broadly rounded, and separated from the rostrum by a rather wide sinus. The 3 anterior pairs of coxal plates fully as deep as the corresponding segments, and somewhat widening distally, 1st pair obtusely truncated at the tip, the 2 succeeding pairs having the anterior corner produced to an acute point; 4th pair somewhat less deep, and narrowly rounded at the tip, posterior edge deeply emarginated in its upper part, and produced below the emargination to an acuminate projection; the 2 succeeding pairs much broader than they are deep, posterior lobe angular below. First pair of epimeral plates of metasome evenly rounded, the 2 suceceding pairs each produced at the lateral corners to an acute recurved point, that of last pair being much the larger and spiniform, posterior edge of all the plates simple, without any angular projections or denticles. Eyes replaced by an irregular patch of a chalky white pigment, only visible in living specimens. Superior antennæ in female scarcely exceeding in length $^1/_4$ of the body, 1st joint of the peduncle but little longer than the 2nd, though much broader and somewhat bent in the middle, flagellum scarcely attaining the length of the peduncle, and composed of 8 articulations, accessory appendage small, biarticulate. Same antennæ in male scarcely longer than in female, but having the 1st joint of the flagellum very large and densely clothed with sensory bristles, accessory appendage likewise much larger than in female, and distinctly triarticulate. Inferior antennæ in female somewhat longer than the superior, the 2 last joints of the peduncle narrow and elongated, about equal-sized, flagellum but little more than half the length of the peduncle and composed of 7 articulations only; those of male nearly attaining the length of the body, flagellum extremely slender, and composed of about 12 rather elongated articulations. Anterior gnathopoda with the propodos scarcely exceeding half the length of the carpus, and oblong oval in form, palm about the length of the hind margin, from which it is defined by an obtuse angle, the thumb-like spine nearly exactly as in *Syrrhoë crenulata.* Posterior gnathopoda somewhat more slender, and having the propodos narrower. The 2 anterior pairs of pereiopoda very slender, with the carpal joint much elongated and edged in its outer part with long setæ. The 3 posterior pairs with the basal joint but little expanded and narrow oblong in form, posterior edge smooth, meral joint rather large and somewhat expanded in its proximal part, with the infero-posteal corner acutely produced. Last pair of uropoda having the inner ramus a little longer than the outer, and about twice the length of the basal part, its inner edge armed with 2 small denticles, outer ramus unarmed; both rami in male edged interiorly with strong ciliated setæ. Telson nearly attaining the length of the urosome, and about twice as long as it is broad at the base, outer part rapidly tapering, tip minutely bidentate. Colour dark yellowish, without any pigmentary ornament. Length of adult female 6 mm., of male about the same.

Remarks. — The present species, the type of the genus, is easily distinguishable from any of the other *Syrrhoidæ* by its very broad subdepressed and angular body, as also by the peculiar shape of the cephalon. It is also fairly distinguishable in this respect from the 2nd species of the genus.

Occurrence. — Though nowhere in any abundance, I have met with this peculiar Amphipod in several places, both off the south and west coasts of Norway, as also in the Trondhjemsfjord. It is a true deep-water form, only occurring in depths ranging from 80 to 300 fathoms. According to Boeck, it extends northwards to the Lofoten Isles (Skraaven). Out of Norway, it has not yet been recorded.

4. **Bruzelia tuberculata,** G. O. Sars.

(Pl. 139, fig. 2).

Bruzelia tuberculata, G. O Sars, Oversigt af Norges Crustaceer I, p. 95, Pl. 4, fig. 7.

Body rather stout and compact, though not nearly so broad as in the type species. All the segments of mesosome, except the 2 foremost, and those of metasome, elevated dorsally to obtuse tuberculiform projections somewhat increasing in size posteriorly, that of last segment somewhat gibbous in form. Inferior edges of the segments of mesosome forming together a rather conspicuous lateral keel, which is also continued on the 2 anterior segments of metasome, terminating in each of them with an angular projection of their posterior edge. Urosome smooth above. Cephalon large and deep, with the upper contour forming a strong and perfectly even curve to the tip of the rostrum, the latter almost perpendicularly deflexed, and acuminate, reaching somewhat beyond the end of the basal joint of the superior antennæ, lateral lobes of cephalon broadly rounded. Coxal plates comparatively small, and not nearly so deep as the corresponding segments, otherwise rather resembling those in the type species. Last pair of epimeral plates of metasome produced at the lateral corners to a strongly recurved, nearly hooklike projection, the inferior edge of which is coarsely serrated. Eyes replaced by a rounded patch of whitish pigment, situated in the upper part of the cephalon, at the base of the rostrum. Superior antennæ (in female) scarcely attaining 1/4 of the length of the body, joints of the peduncle successively decreasing in size, 1st joint rather large, and but slightly curved, flagellum much shorter than the peduncle, and composed of 6 articulations only, accessory appendage about the length of the 1st joint of the flagellum, and biarticulate. Inferior antennæ somewhat longer than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum about half the length of the peduncle, and 6-articulate. Gnathopoda almost exactly as in *B. typica.* The 2 anterior pairs of pereiopoda also of much the same structure as in that species; the 3 posterior pairs rather strong, and not very unequal in length, basal joint of last pair much larger and broader than in the preceding pairs, nearly cordiform in shape, posterior edge, as in the preceding pairs, minutely serrated, meral joint considerably expanded in its proximal part. The 2 anterior pairs of uropoda nearly as in the type species; last pair with the rami scarcely longer than the basal part, and quite naked. Telson fully as long as the urosome, and slightly instricted near the base, outer part tapering to an acute simple point. Body light yellowish; ornamented with large, irregular patches of a diffuse, brick-red pigment. Length of adult female 6 mm.

Remarks. — Though rather nearly allied to the preceding species as regards the structure of the several appendages, this form is at once distinguishable by several very conspicuous external characteristics. For instance the form of the cephalon and the rostrum is very different, the dorsal projections much more numerous, and the 2 anterior segments of metasome prominently distinguished by the distinct lateral keel running along them, and causing their posterior edge to be conspicuously angular on each side; finally the colour of the body is very characteristic and unusual.

Occurrence. — I have met with this species only in 2 localities of the Norwegian coast, viz, off the Lofoten Isles, and at Bejan in the outer part of the Trondhjemsfjord. It occurred in both localities rather sparingly, in a depth ranging from 100 to 300 fathoms. Out of Norway, it has not yet been recorded.

Gen. 4. Tiron, Lilljeborg, 1865.

Syn.: Syrrhoë, Goës (part).
» Tessarops, Norman.

Body less robust than in the 2 preceding genera, and with the integuments rather thin. Cephalon of moderate size, and but slightly produced in front, lateral parts not expanded. Coxal plates well developed;

4th pair less deep than the preceding pair. Urosome comparatively large and massive, with the segments produced dorsally. Eyes distinct and scarcely coalescent; below them on each side, a minute accessory eye. Antennæ comparatively slender, the superior one shorter than the inferior, and having the accessory appendage rather fully developed. Oral parts normal: Anterior lip rounded, with a compressed median projection; posterior lip with the inner lobes well developed. Mandibles rather strong, but of quite normal structure, the cutting part being distinctly dentated, and the molar expansion well defined, palp comparatively small. First pair of maxillæ with the basal lobe rounded, and edged with numerous ciliated setæ; 2nd pair with the outer lobe narrower than the inner. Maxillipeds nearly as in *Syrrhoë.* Gnathopoda comparatively much prolonged and densely setous, carpus greatly elongated and very narrow, propodos simple linear, not subcheliform. Pereiopoda short and stout, the 3 posterior pairs successively increasing in size, and having the basal joint greatly expanded. The 2 anterior pairs of uropoda normal; last pair rather large, with the rami lanceolate, the outer one with a small terminal joint. Telson very narrow and elongated, deeply cleft.

Remarks. — The present genus was established by Prof. Lilljeborg in the year 1865, to include the species described in the sequel. With this, the genus *Tessarops* of Norman is undoubtedly identical. Among the characteristics distinguishing the present genus from the other *Syrrhoidæ,* may be named the very full development of the accessory appendage of the superior antennæ, the rather different structure of the gnathopoda, and the presence of an accessory eye on each side, below the true eyes, which are not completely coalesced as in *Syrrhoë.* The genus comprises as yet but a single species, to be described in the sequel.

5. **Tiron acanthurus,** Lilljeborg.

(Pl. 140).

Tiron acanthurus, Lilljeborg, On the Lysianassa magellanica etc. p. 16.

Syn.: Syrrhoë bicuspis, Goës.
» Tessarops hastatus, Norman.

Body moderately slender and somewhat compressed, with the back evenly rounded, and the posterior edge of the segments of metasome serrated in the dorsal part. Segments of urosome each produced dorsally to a conically pointed, deflexed projection, the posterior of which is somewhat smaller than the 2 anterior. Cephalon about the length of the first 3 segments of mesosome combined, and produced in front to a comparatively short deflexed rostrum, lateral corners but little produced, and nearly rectangular. The 3 anterior pairs of coxal plates rather narrow, and deeper than the corresponding segments, distal edge minutely crenulated and setous; 1st pair obliquely rounded at the tip; the 2 succeeding ones obtusely truncated; 4th pair but very slightly emarginated posteriorly, and having the outer part obtusely triangular; 5th and 6th pairs with the posterior lobe rather deep, and narrowly rounded. Epimeral plates of metasome comparatively large, last pair with the lateral corners but very slightly produced. Eyes of moderate size, rounded, pigment dark red; accessory eyes very small, situated about midway between the eyes and the inferior edge of the cephalon. Superior antennæ in female exceeding in length 1/4 of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum considerably longer than the peduncle and very slender, being composed of about 10 articulations, accessory appendage fully half the length of the flagellum and 5-articulate. Inferior antennæ much longer than the superior, last joint of the peduncle shorter than the penultimate one, flagellum about half the length of the peduncle and 9-articulate. Antennæ in male considerably more elongated than in female, the superior one having the 1st joint of the flagellum very large and densely clothed with sensory bristles, the inferior ones with the flagellum exceeding the peduncle in length, and composed of about 15 articulations, finely ciliated on the lower edge. Gnathopoda exactly alike in structure, carpus slightly expanded in its proximal part, and gradually tapering distally, propodos not attaining half the length of the former, dactylus very slender, biarticulate. The 2 anterior pairs of pereiopoda unusually short, and but thinly setous, propodal joint very narrow, dactylus small. The 3 posterior pairs much stronger, though not much elongated, outer part edged with slender spines, basal joint of last pair much larger than in the preceding pairs, and of rounded form, with the posterior edge considerably curved and quite smooth, meral joint large and broad. Last pair of uropoda considerably projecting beyond the others; rami of equal length, and edged with small spinules and a few slender setæ more fully developed in the male. Telson extremely narrow and elongated, gradually tapering distally, cleft extending nearly to the base, terminal lobes acute, and with a few hairs on their outer edge. Colour dark reddish brown. Length of adult female 8 mm., of male 9 mm.

Remarks. — The present form was first detected by Prof. Lilljeborg in the year 1865, and somewhat later in the same year, was described by Goës as a species of the genus *Syrrhoë*, under the name of *S. bicuspis*. The *Tessarops hastata* of Norman is undoubtedly also identical with Lilljeborg's species. From the other *Syrrhoidæ*, this form may at once be distinguished by the very strongly-developed urosome, all the segments of which are produced dorsally to spiniform projections, by the rather deviating structure of the gnathopoda, the considerable development of the accessory appendage of the superior antennæ, and finally, by the comparatively short and stout pereiopoda. The presence of accessory eyes is another peculiar feature of this form, somewhat reminding of the *Ampeliscidæ.*

Occurrence. — Off the coast of Finmark this form is not rarely found, in moderate depths ranging from 20 to 60 fathoms. It also occurs occasionally off the west coast of Norway (Christiansund), and I have met with it even as far south as at Mærdø, south of Arendal.

Distribution. — Greenland (Goës), British Isles (Norman), Kattegat (Meinert).

Fam. 16. Pardaliscidæ.

Body, as a rule, rather slender, but not compressed, with the mesosome generally well developed, and the integuments thin and flexible. Cephalon large or of middle size, with a very small rostral projection. Coxal plates comparatively small, 4th pair not differing in shape from the preceding ones, 5th pair with the anterior lobe deeper than the posterior. Eyes present or obsolete, never coalescent. Antennæ more or less slender, the superior ones furnished with an accessory appendage, peculiarly modified in the male. Buccal area greatly projecting, and having the oral parts strongly developed. Mandibles without any trace of a molar expansion. Gnathopoda subequal in structure, now rather small and simple, now powerfully developed and imperfectly subcheliform. The 2 anterior pairs of pereiopoda more or less differing from the 3 posterior pairs, which are rather elongated, with the basal joint not very much expanded. Last pair of uropoda comparatively large, with the rami more or less foliaceous. Telson of moderate size, and deeply cleft. Sexual difference sometimes rather prominent.

Remarks. — As pointed out by Boeck, this family exhibits some points of affinity to the *Syrrhoidæ,* especially as regards the structure of the antennæ, and the manner in which they are modified in the male, partly also in the shape of the gnathopoda. It differs, however, very markedly in the structure of the oral parts, particulary that of the mandibles, and also in the general habitus, which somewhat resembles that of the *Gammaridæ.* The family comprises as yet but 4 genera, one of which is now for the first time established.

Gen. 1. **Pardalisca,** Kröyer, 1842.

Body rather tumid, nearly cylindric in from, with broadly vaulted back, and the 2 anterior segments of urosome produced dorsally. Cephalon large and thick, obtusely truncated in front, with a very slight rostral projection above the bases of the superior antennæ, lateral edges evenly curved, and forming behind the insertion of the mandibles a narrowly rounded deflexed lobe. The anterior pairs of coxal plates slightly increasing in size to the 4th pair; 5th pair nearly as deep as the former, the 2 succeeding pairs much smaller. Eyes distinct, placed near the anterior edges of the cephalon, visual elements imperfectly developed. Antennæ rather elongated, the inferior ones longer than the superior, peduncle of the latter comparatively short. Anterior lip lamellar and very unequally bilobed; posterior lip large, with the inner lobes well defined, though rather small, the outer ones narrowly produced behind, and far apart. Mandibles very strong, cutting part much expanded, and divided, on the right mandible, into 4 coarse teeth; left mandible with the teeth less distinctly defined, but having a rather large secondary lamella; palp of moderate size and densely setous. First pair of maxillæ rather large, with the masticatory lobe considerably projecting, and armed with a single row of strong spines, basal lobe small, unisetose, palp having the terminal joint much expanded, and regularly denticulated on the distal edge. Second pair of maxillæ comparatively small, with both lobes very narrow, and bearing long ciliated setæ. Maxillipeds having the outer segment of the basal part much prolonged and laminar, basal lobes rudimentary, masticatory lobes broad, and densely edged with slender setæ, palp of moderate size, with the dactylus rather small. Gnathopoda not very strong, carpus rather large and subfusiform, propodos narrow linear, dactylus of different form in the various species. The 2 anterior pairs of pereiopoda comparatively short, with the meral joint shorter than the carpal one, both compressed laminar, and densely setiferous. The 3 posterior pairs much elongated, with the dactylus comparatively short. The 2 anterior pairs of uropoda densely edged with spines, and with the rami not very unequal; last pair considerably projecting beyond the others, rami subequal, foliaceous, and edged interiorly with ciliated setæ. Telson armed on each side with a number of slender spines, cleft very deep, terminal lobes slightly diverging, and more or less distinctly indented at the tip.

Remarks. — The present genus, the type of the family, was established by Kröyer in the year 1842, to include the 1st of the species described in the sequel. It may be distinguished from the other genera of the present family, by the smooth cylindrical body, the large and, as it were, swollen cephalon and the dorsally produced segments of urosome. Moreover the mutual longitudinal relation of the 2 pairs of antennæ, and the structure of the gnathopoda will serve for recognizing this genus. It comprises 3 Norwegian species, (to be described in the sequel), one of which is now for the first time established. The Rev. Mr. Stebbing has also described another species from the Challenger Expedition as *P. Marionis.*

1. **Pardalisca cuspidata**, Kröyer.

(Pl. 141, Pl. 142, fig. 1).

Pardalisca cuspidata, Kröyer, Nat. Tidsskr. 1 R. Bd. 4, p. 153.

Body moderately slender, cylindric, smooth, with the back broadly rounded. Last segment of metasome having the posterior edge produced on each side of the dorsal face to a triangular, flattened lobe. First segment of urosome with 2 juxtaposed dorsal projections, 2nd segments with a single mediane one. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection very small, anterior edge passing into the inferior in a perfectly even curve. The anterior pairs of coxal plates about half as deep as the body, and rounded quadrangular in form; 5th pair with the anterior lobe broadly rounded, and twice as deep as the posterior. Last pair of epimeral plates of metasome but slightly produced at the lateral corners. Eyes very narrow, slightly sigmoid in form, and nearly occupying the whole height of the front part of the cephalon, pigment bright red. Superior antennæ in female considerably exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum more than 3 times as long as the peduncle, and composed of numerous short articulations, accessory appendage about half the length of the peduncle and 5-articulate, with the 1st articulation nearly as long as the other 4 combined. Inferior antennæ exceeding the superior by about $^1/_4$ of their length, the 2 outer joints of the peduncle rather elongated and narrow, and nearly equal-sized, flagellum somewhat longer than the peduncle. Both pairs of antennæ in male comparatively longer than in female, the superior ones having the 1st joint of the flagellum very large and clothed with fine sensory bristles arranged in several transverse rows, accessory appendage much larger than in female, and having its 1st articulation somewhat laminar, and more than twice as long as the other 4 combined. Anterior gnathopoda rather small, though not very slender, carpus considerably dilated in the middle, subfusiform, and densely setous inferiorly, propodos much narrower and scarcely half as long, dactylus forming a broadly oval, scale-like lamella, armed at the tip and along the posterior edge with strong spines. Posterior gnathopoda somewhat more elongated than the anterior, otherwise of the very same structure. The 2 anterior pairs of pereiopoda with the meral joint rather expanded and triangular in form, carpal joint oblong fusiform in outline. The 3 posterior pairs not very slender, but rather elongated, basal joint narrow oblong in form, dactylus short and broad, scarcely exceeding in length $^1/_4$ of the propodal joint. Last pair of uropoda with the basal part comparatively narrow, rami rather broad and prominently foliaceous, with numerous, ciliated setæ on the inner edge, outer edge armed with small spinules. Telson rather broad at the base, and gradually tapering distally, having on each side, somewhat in front of the middle, 3 juxtaposed slender dorsal spinules, and in addition 3 marginal ones, cleft extending nearly to the base, and somewhat dilated at the bottom, terminal lobes slightly diverging, and obliquely truncated at the tip, with the inner corner somewhat projecting, dentiform, each lobe bearing 3 slender apical spinules. Body semipellucid, with a yellowish orange tinge; ova in the marsupial pouch rose-coloured. Length of adult female 12 mm., of male about the same.

Remarks. — This is the form upon which Kröyer founded his genus *Pardalisca.* Through the kindness of Dr. Hansen, I have had an opportunity of examining the type specimens of Kröyer preserved in the Copenhagen Museum, and find them to agree perfectly with the form here described. The description given by Boeck of this species is somewhat misleading, in so far as he erroneously indicates the length of the dactylus on the 3 posterior pairs of pereiopoda to be half that of the propodal joint. It is in reality very much shorter, and the present species scarcely differs in that respect from his other species, *P. abyssi.*

Occurrence. — Off the coast of Finmark, this form is not rarely met with, in moderate depths ranging from 10 to 30 fathoms. I have for instance collected it rather plentifully in the Varangerfjord at Vadso, and Mr. Schneider has found it very abundantly in the Kvænangenfjord, and also in the neighbourhood of Tromsø. It occurs also occasionally off the west coast of Norway, as for instance at Christiansund, and extends, according to Bruzelius, as far south as Bergen.

Distribution. — Greenland (Kröyer), Spitsbergen (Goës), Matotschinskar (Stuxberg), Bohuslän (Bruzelius).

2. **Pardalisca tenuipes,** G. O. Sars, n. sp.

(Pl. 142, fig. 2).

Form of body about as in the type species, though perhaps somewhat less slender; subdorsal lobes of last segment of metasome very slight and rounded at the tip; urosome armed in a manner similar to that in the said species. Cephalon very large, considerably exceeding in length the first 2 segments of mesosome combined, rostral projection a little more produced than in *P. cuspidata*, anterior edges passing into the inferior by a rather strong curve. Coxal plates scarcely differing in shape from those in the latter species. Last pair of epimeral plates of metasome, however, considerably more produced at the lateral corners. Eyes comparatively small, sublinear in form, pigment chalky white. Antennæ very slender, the superior ones in female attaining nearly half the length of the body, and having the flagellum 4 times as long as the peduncle, accessory appendage scarcely half the length of the latter and 6-articulate. Inferior antennæ exceeding the superior by nearly $^1/_3$ of their length, flagellum half as long again as the peduncle. Antennæ in male still more elongated than in female, the superior ones having, as usual, the 1st joint of the flagellum very large and densely clothed with rather long sensory bristles, accessory appendage likewise much larger than in female, but only composed of 3 articulations, the 4 innermost being coalesced to a very large flattened joint. Gnathopoda resembling those in the type species, except that the dactylus is somewhat less dilated and has the terminal spine much stronger than the others. The 2 anterior pairs of pereiopoda likewise rather resembling those in *P. cuspidata*. The 3 posterior pairs, on the other hand, considerably more slender, and also more densely setiferous, propodal joint in all very narrow, dactylus not nearly so broad as in that species, and subulate in form. Last pair of uropoda with the rami less broad, the outer one being somewhat longer than the inner. Telson much narrower than in the type species, nearly twice as long as it is broad at the base, and having, besides the 3 juxtaposed dorsal spinules, only a single marginal one near the tip, cleft very deep, terminal lobes rather narrow and bidentate at the tip, each bearing a single apical spinule. Body rather pellucid, with a slight yellowish grey tinge; ova in the marsupial pouch orange-coloured. Length of adult female scarcely attaining 11 mm.

Remarks. — Though very nearly allied to *P. cuspidata*, this new species may, on a closer examination, be easily distinguished, among other characteristics, by the much more slender form of the antennæ and of the 3 posterior pairs of pereiopoda, by the very slight subdorsal projections of the last segment of metasome, and by the comparatively small, whitish eyes.

Occurrence. — I have met with this form rather sparingly in a few places off the west coast of Norway, as also in the Trondhjemsfjord, and only in depths ranging from 50 to 100 fathoms. It thus would seem to be a more distinct deep-water form than the type species.

3. **Pardalisca abyssi**, Boeck.

(Pl. 143, fig. 1).

Pardalisca abyssi, Boeck, Crust. amphip. bor. & arctica, p. 72.

Body, as to its general appearance, very like that in the type species, though perhaps, even a little more slender. Last segment of metasome and the first 2 of urosome armed in exactly the same manner as in that species. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection very small, anterior edges passing into the inferior by a rather strong but even curve. Coxal plates as in the 2 preceding species. Last pair of epimeral plates of metasome but little produced at the lateral corners, and nearly rectangular. Eyes very large, occupying the entire height of the front part of the cephalon, and distinctly sigmoid in form, lower part considerably expanded, pigment light red. Superior antennæ in female scarcely exceeding in length $^1/_3$ of the body, peduncle about as in *P. cuspidata,* flagellum 3 times as long as the latter, accessory appendage half the length of the peduncle and 5-articulate, 1st articulation not very much larger than the others. Inferior antennæ exceeding the superior by nearly $^1/_3$ of their length. Antennæ in male modified in the usual manner, accessory appendage of the superior ones composed of the same number of articulations as in female, but having the 1st one very large and laminar. Maxillipeds differing a little from those in the type species, having the masticatory lobes comparatively smaller and the palp more slender, with the 2nd joint very narrow. Gnathopoda resembling in shape those in the 2 preceding species, with this difference, however, that the dactylus, instead of being lamellar, is simple unguiform, and armed along the concave edge with a row of small spinules. Pereiopoda nearly as in *P. cuspidata,* the dactylus of the 3 posterior pairs being, as in that species, rather short and broad. Last pair of uropoda having the outer ramus somewhat larger than the inner, both prominently foliaceous in character, and edged interiorly with ciliated setæ. Telson scarcely twice as long as it is broad at the base, evenly tapering distally, and provided on each side with 4 marginal spinules, cleft very deep and narrow at the bottom, terminal lobes bidentate at the tip, and bearing each a single apical spinule. Body semipellucid, with a slight orange tinge on the back; ova in the marsupial pouch rose-coloured. Length of adult female reaching 23 mm.

Remarks. — The present species, established by Boeck, is easily distinguishable from the 2 preceding ones by the rather different shape of the dactylus of the gnathopoda, and by the very large eyes. It also grows to a much larger size than any of the other species.

Occurrence. — Boeck found this species at Haugesund and Hvitingsø. I have myself met with it in several places off the west coast of Norway, and especially very abundantly in the inner part of the Trondhjemsfjord, at Vennæs, where it occurred in a depth of 100 to 150 fathoms. It extends northwards to the Lofoten Isles, but has not yet been found off the Finmark coast.

Distribution. — West of Spitsbergen (St. 359 of the Norwegian North Atl. Exp.); South of Halifax, Nova Scotia (Stebbing).

Gen. 2. **Pardaliscella,** G. O. Sars, n.

Syn.: Pardalisca, Malm (part).

Body slender, cylindric, with none of the segments produced dorsally. Cephalon less deep than in *Pardalisca*, and narrowly truncated in front. Coxal plates nearly as in that genus. Antennæ comparatively short, subequal in length, peduncle of the superior ones more elongated than in *Pardalisca*. Posterior lip with the inner lobes coalesced. Mandibles less strong than in the said genus, cutting part not nearly so much expanded, though armed in a similar manner, palp very slender, and naked, except at the tip. First pair of maxillæ somewhat resembling those in *Pardalisca*, but having the 2 exterior spines of the masticatory lobe much stronger than the others, and the terminal joint of the palp less expanded. Second pair of maxillæ with the lobes comparatively shorter, and having a much smaller number of setæ. Maxillipeds with the masticatory lobes rather small, basal lobes well defined, though not very large, palp of moderate size. Gnathopoda comparatively much more strongly built than in *Pardalisca*, carpus not much elongated, propodos well developed, obpyriform, dactylus simple, unguiform. Pereiopoda about as in *Pardalisca*, though the posterior pair appear somewhat less elongated. The 2 anterior pairs of uropoda comparatively short, and but very sparingly spinous; last pair with the rami quite naked, the outer one narrower than the inner and having a distinct terminal joint. Telson unarmed, deeply cleft.

Remarks. — The present new genus is founded upon the form described by Malm as *Pardalisca Boeckii*, and also by Boeck referred to the same genus. On a closer examination of this form, I have, however, found it to differ in some points rather markedly from the other species of *Pardalisca*, so as more properly to be regarded as the type of a separate genus. For instance, the gnathopoda look very different, and resemble much more those in the genus *Nicippe*, and also the comparatively short, equal-sized antennæ, and the rather different structure of the uropoda and telson would seem to distinguish this form rather prominently. Moreover there are to be found, in the structure of the oral parts, some points of difference apparently of generic value. The genus comprises as yet but a single species, to be described in the sequel.

4. **Pardaliscella Boeckii** (Malm).

(Pl. 143, fig. 2).

Pardalisca Boeckii, Malm, Om twå för Vetenskapen nya Amphipod-species fron Bohuslän. Øfvers. af Vet. Akad. Förh. 1870, p. 547, Pl. 5, fig. 2.

Body extremely slender and quite smooth, with the mesosome very fully developed, being twice the length of the metasome. Cephalon not attaining the length of the first 2 segments of mesosome combined, rostral projection nearly obsolete, lateral corners somewhat projecting and evenly rounded at the tip. First pair of coxal plates having the anterior corner acutely produced, the 3 succeeding pairs obliquely rounded at the tip, and nearly equal-sized, 5th pair with the anterior lobe fully as deep as the preceding pair. Last pair of epimeral plates of metasome evenly rounded at the lateral corners. Eyes inconspicuous in alcoholic specimens. Superior antennæ (in female) scarcely exceeding in length $^1/_5$ of the body, 1st joint of the peduncle rather large, and exceeding in length the other 2 combined, flagellum but little longer than the peduncle, and composed of about 12 articulations, the 1st of which is much the largest, accessory appendage rather small, 3-articulate. Inferior antennæ scarcely longer than the superior, the 2 last joints of the peduncle not much prolonged, and nearly equal-sized, flagellum about the length of those joints combined. Gnathopoda rather strongly built, with the propodos fully as long as the carpus, and oblong oval in shape, or nearly obpyriform, dactylus acuminate, with a single small denticle at about the middle of the concave edge. The 2 anterior pairs of pereiopoda of a similar structure to those in *Pardalisca*, though much less densely setous; the 3 posterior pairs rapidly increasing in length, and having the basal joint rather narrow, though considerably more expanded in the last pair than in the preceding ones, propodal joint in all very narrow, linear, dactylus extremely slender, being on the antepenultimate pair fully as long as the propodal joint; in the last pair but little shorter. The 2 anterior pairs of uropoda with the rami lanceolate in form, and each only armed with a single spinule at about the middle of either edge; last pair projecting considerably beyond the others, inner ramus lanceolate, outer sublinear, both quite naked. Telson not quite twice as long as it is broad at the base, outer half rapidly tapering, cleft very narrow and extending somewhat beyond the middle, terminal lobes acute at the tip.

Colour in the living state of the animal not yet stated Length of adult female scarcely exceeding 4 mm.

Remarks. — As above stated, this form was first detected by Malm on the Bohuslän coast, and described as *Pardalisca Boeckii.* The same form was subsequently recorded by Boeck from the Norwegian coast, and more minutely described in his great work, under the same name. It may be easily distinguished from the other *Pardaliscidæ* not only by its small size, but also by the extremely slender form of the body, the absolute want of any dorsal projections on the urosome, and by the comparatively short antennæ.

Occurrence. — Boeck found this form in the Christianiafjord and at Haugesund, west coast of Norway. I have myself only met with a single specimen, which was taken at Hvaløer, in the outer part of the Christianiafjord, from a depth of about 100 fathoms.

Distribution. — Bohuslän (Malm).

Gen. 3. **Nicippe,** Bruzelius, 1859.

Body comparatively broad, with very small and scarcely contiguous coxal plates. Cephalon with a very small rostral projection, lateral corners rather produced. Eyes rudimentary. Antennæ slender, the superior ones being in female much the longer. Buccal area very much projecting below. Anterior lip but slightly bilobed at the tip; posterior lip not very large, and having the inner lobes coalesced. Mandibles strong, with the cutting part much expanded, and irregularly dentated on both mandibles, secondary lamella on the left mandible rather large and finely serrated; palp of moderate size, setous. Maxillæ of a structure similar to those in *Pardalisca*, except that the terminal joint of the palp of 1st pair is far less expanded, and edged with small spinules. Maxillipeds largely developed, with the outer segment of the basal part of moderate length, basal lobes well defined and conical in form, masticatory lobes very small, palp of quite an unusual size, and densely setiferous. Gnathopoda very powerfully developed, carpus comparatively short, and forming below a densely setous expansion, propodos large, oblong oval in form, dactylus simple acuminate. The 2 anterior pairs of pereiopoda of a structure similar to those in *Pardalisca*, but comparatively more elongated; the 3 posterior pairs rapidly increasing in length, and having the basal joint rather narrow, and the dactylus slender, setiform. The 2 anterior pairs of uropoda rather strong and densely spinous; last pair projecting considerably beyond the others, rami densely setous on the inner edge. Telson comparatively narrow, and deeply cleft.

Remarks. — This genus, established by Bruzelius, is nearly allied to *Pardalisca*, differing however in a few points rather markedly, as, for instance in the mutual longitudinal relation of the 2 pairs of antennæ in female, in the unusually strong development of the palp of the maxillipeds, and finally, by the likewise very powerfully developed gnathopoda. The genus comprises as yet but a single species, to be described in the sequel.

5. **Nicippe tumida**, Bruzelius.

(Pl. 144, Pl. 145, fig. 1).

Nicippe tumida Bruzelius, Amph. Gamm., Kgl. Vetensk. Akad. Handl. Bd. III. p. 99, Pl. IV, fig. 19.

Body moderately slender and very tumid, subdepressed, with the back broadly vaulted and quite smooth; 1st segment of urosome with 2 small, juxtaposed, dorsal projections. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, and rather broad, rostral projection very slight, lateral corners angularly produced, their inferior edges continued backwards as a laterally projecting ridge. First pair of coxal plates somewhat larger than the 3 succeeding pairs, which are about equal-sized and not quite contiguous, all being considerably broader than they are deep, and having the distal edge obliquely curved; 5th pair with the anterior lobe broadly rounded, and about as deep as the preceding pair; the 2 succeeding pairs very small. Last pair of epimeral plates of metasome rectangular. Eyes quite rudimentary, and only visible in the living animal as a slight accumulation of a yellowish pigment close to the anterior edges of the cephalon. Superior antennæ in female very slender and elongated, considerably exceeding half the length of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum nearly 4 times as long as the peduncle, and composed of numerous articulations, the 1st of which is the largest; accessory appendage comparatively small, scarcely exceeding in length $^1/_3$ of the peduncle, and 3-articulate, 1st articulation longer than the other 2 combined. Same antennæ in male still more elongated, and having the 1st joint of the flagellum very large, and densely clothed with sensory bristles, accessory appendage about the length of the peduncle, and having the 1st articulation very large and lamellar. Inferior antennæ in female considerably shorter than the superior, last joint of the peduncle about the length of the penultimate one, but considerably narrower, flagellum equalling the peduncle in length; those in male much more elongated, somewhat exceeding even the superior ones in length, and having the flagellum very slender, filiform. Anterior gnathopoda with the propodos very large and tumid, subovate in form, and attaining the length of the 3 preceding joints combined, palm not defined, dactylus long and curved. Posterior gnathopoda almost exactly like the anterior, both as to size and structure, except that the inferior expansion of the carpus is somewhat more prominent and very densely clothed with bristles, some of which are strongly curved. The 2 anterior pairs of pereiopoda rather elongated, with the meral and carpal joints nearly equal-sized. The 3 posterior pairs very slender and rather densely setous, those of last pair attaining $^2/_3$ of the length of the body, dactylus in all very slender, setiform. Last pair of uropoda rather large, basal part comparatively thick and setous on the outer edge, rami oblong lanceolate, and edged interiorly with long ciliated setæ, outer ramus a little longer than the inner. Telson very narrow, nearly 3 times as long as it is broad, and having on each side, somewhat behind the middle, a single marginal spinule, besides 2 juxtaposed dorsal spinules in front of the latter, cleft very deep, nearly extending to the base and somewhat dilated at the bottom, terminal lobes narrow, bidentate at the tip, and bearing each a single apical spinule. Body semipellucid, with a yellowish orange tinge. Length of adult female reaching 14 mm., of male somewhat less.

Remarks. — This form was first described by Bruzelius from specimens found at Drøbak in the Christianiafjord, and was subsequently recorded by Boeck from several other localities of the Norwegian coast. It may easily be distinguished from the other *Pardaliscidæ* by its broad, subdepressed body, the slender and elongated superior antennæ, and the very powerful gnathopoda.

Occurrence. — The species is not rarely met with along the whole south and west coasts of Norway, as also in the Trondhjemsfjord, occurring, as a rule, in comparatively great depths, ranging from 60 to 300 fathoms. According to Boeck, it extends northwards to the Lofoten Isles.

Distribution. — Shetland Isles (Sp. Bate).

Gen. 4. **Halice,** Boeck, 1870.

Form of body somewhat resembling that in the preceding genus, the 2 anterior segments of urosome, however, produced dorsally. Cephalon comparatively small, with a distinct rostral projection. Coxal plates extremely small. Eyes wanting. Antennæ slender, the superior ones being somewhat shorter than the inferior. Both pairs of antennæ in male much more strongly developed than in female. Mandibles with the masticatory part less expanded than in the preceding genera, and having on each mandible a small secondary lamella, palp not very large, with the terminal joint very small. First pair of maxillæ having the terminal joint of the palp not at all expanded; 2nd pair comparatively larger than in the preceding genera. Maxillipeds much smaller than in *Nicippe,* basal lobes nearly obsolete, masticatory lobes of moderate size, and edged with a comparatively small number of curved spines, palp not very large. Gnathopoda not nearly so powerful as in the said genus, propodos rather narrow, though much more fully developed than in *Pardalisca,* dactylus simple, unguiform. The 2 anterior pairs of pereiopoda of the usual structure; the 3 posterior pairs rather slender and successively increasing in length, basal joint rather narrow, dactylus slender, subulate. Last pair of uropoda projecting considerably beyond the others, rami subfoliaceous, and setous inside, the outer one with a distinct terminal joint. Telson narrow, unarmed, and deeply cleft.

Remarks. — Boeck says of this genus, that it is very nearly allied to *Pardalisca,* only differing in that the cephalon is smaller, the peduncle of the inferior antennæ somewhat more prolonged, and the 3 posterior pairs of pereiopoda very slender. As to the 2 last-named characteristics, there is indeed scarcely any noticeable difference between the 2 genera, and thus, of the distinguishing features named by Boeck, only the comparatively small size of the cephalon remains. As shown by the above diagnosis, there are, however, besides this latter characteristic, several well marked differences, apparently of generic value, to be found, especially in the structure of the oral parts: and the gnathopoda are evidently also rather different in shape from those in *Pardalisca.* According to Boeck, the genus comprises no less than 5 species, 2 of which he describes as *H. abyssi* and *H. grandicornis,* the other 3 not being indicated either by name or locality. The 2 species described are, however, most assuredly founded on the 2 sexes of one and the same species, the only one which, as yet, has come to my knowledge.

6. **Halice abyssi,** Boeck.

(Pl. 145, fig. 2).

Halice abyssi, Boeck, Crust. amph. bor. & arct. p. 72.

Syn.: H. grandicornis, Boeck (male).

Body moderately slender, with the mesosome in female about the length of the remaining part of the body, in male scarcely longer than the metasome. The 2 anterior segments of urosome each produced dorsally to an acuminate deflexed projection, the posterior one being the larger. Cephalon not nearly attaining the length af the first 2 segments of mesosome combined, rostral projection reaching nearly to the middle of the basal joint of the superior antennæ, lateral corners somewhat produced, and narrowly rounded at the tip. First pair of coxal plates having the anterior corner acutely produced; the 3 succeeding pairs obliquely rounded at the tip, and but little different in size; 5th pair more than twice as broad as they are deep, and having the anterior lobe scarcely expanded below. Last pair of epimeral plates of metasome nearly rectangular. Eyes wholly absent, not even the slightest trace of any replacing pigment being visible in the living animal. Superior antennæ in female but little exceeding in length $^1/_3$ of the body, 1st joint of the peduncle nearly twice as long as the other 2 combined, flagellum scarcely 3 times as long as the peduncle, and having the 1st joint as long as the 8 succeeding ones combined, accessory appendage rather slender and nearly as long as the peduncle, triarticulate, with the 1st articulation twice the length of the other 2 combined. Inferior antennæ but little longer than the superior, last joint of the peduncle shorter than the penultimate one, flagellum about the length of the peduncle. Both pairs of antennæ in male much more strongly built than in female and nearly twice as long, the superior ones having the 1st joint of the flagellum extremely large and densely clothed with sensory hairs, accessory appendage about the same length as the latter, and having its 1st joint pronouncedly laminar. Gnathopoda with the carpus scarcely at all expanded below, but densely setous, especially on the posterior ones, propodos much longer than the carpus, and rather narrow, with the palmar edge densely setous, dactylus of moderate length, and quite simple. The 2 anterior pairs of pereiopoda scarcely longer than the gnathopoda, and having the meral joint a little shorter than the carpal one. The 3 posterior pairs rather slender and elongated, basal joint of the antepenultimate pair comparatively small and narrow, that of the 2 succeeding pairs successively larger, meral joint considerably longer than the carpal one, propodal joint about the length of the latter, dactylus rather short. Last pair of uropoda with the outer ramus somewhat longer than the inner, terminal joint small, spiniform. Telson rather narrow and elongated, more than twice as long as it is broad at the base, and gradually tapering distally, cleft very narrow, and extending nearly to the base, terminal lobes bidentate at the tip. Body pellucid, with a faint yellowish tinge. Length of adult female 8 mm., of male 9 mm.

Remarks. — There cannot in my opinion be any doubt that the form described by Boeck as *Halice grandicornis* is the adult male of *H. abyssi*, and therefore ought to be cancelled as a separate species. The sexual difference is certainly, in this form, very prominent, but in all essential points it corresponds pretty well with that observed in the other *Pardaliscidæ*. From these the present form may be easily distinguished by the comparatively small size of the cephalon, and by the 2 superposed dorsal projections of the urosome.

Occurrence. — Though nowhere in any abundance, this form would seem to occur along the whole coast of Norway, from the Christianiafjord to Vadsø. It is a true deep-water form, only occurring in depths ranging from 100 to 400 fathoms.

Distribution. — Stat. 18 & 295 of the Norwegian North Atlantic Expedition, both lying outside the great fishing banks of the west coast of Norway.

Fam. 17. Eusiridæ.

Body generally rather slender, now compressed, now more cylindric in form, with the metasome powerfully developed. Cephalon not very large, more or less produced in front, and having the inferior edges incised to receive the large basal joint of the inferior antennæ. Coxal plates now of moderate size, now very small, 1st pair always expanded distally. Antennæ comparatively slender, with elongated peduncles, the superior ones provided with a very small accessory appendage; those of male more or less distinctly modified. Oral parts of normal structure. Mandibles having the molar expansion well developed, and the terminal joint of the palp much elongated. Maxillipeds rather large, with strong palps. Gnathopoda subequal, and rather strongly built, with the propodos large and subcheliform. The 2 anterior pairs of pereiopoda generally very slender and shorter than the 3 posterior ones, which successively increase in length and have the basal joint moderately expanded. Last pair of uropoda somewhat differing from the preceding pairs, having the rami more or less foliaceous. Telson very large, and with the outer part cleft.

Remarks. — This family was established in the year 1888 by the Rev. Mr. Stebbing, to include the genera formerly referred by Boeck, to his subfamily *Leucothoinæ*, with the exception of the genus *Leucothoë*, which was considered as the type of a separate family. He refers, besides, to the same family 2 new genera, viz., *Cleonardo* and *Eusiroides*. The family is here taken in a somewhat more restricted sense than is done by Mr. Stebbing, the genus *Lilljeborgia* being excluded, on account of its very striking difference from the other types, especially as regards the very fully developed accessory appendage of the superior antennæ, and the well-pronounced sexual difference in the structure of the gnathopoda. In both these respects it would seem to approach nearer to the family *Gammaridæ* and especially to the genus *Cheirocratus* of Norman. Only two of the genera belonging to the present family are represented in the fauna of Norway.

Gen. 1. Eusirus, Krøyer, 1845.

Body compressed and more or less distinctly carinated dorsally, some of the segments being produced to posteriorly-pointing, dorsal projections. Cephalon with a rather small rostral prominence, lateral corners short and broad. Coxal plates of moderate size, 1st pair broadly expanded distally, 4th pair much the largest, and distinctly emarginated posteriorly in their upper part; the 2 succeeding pairs not nearly so deep as the preceding ones, and having the anterior lobe scarcely larger than the posterior. Epimeral plates of metasome rather large, those of last pair serrated posteriorly, and not at all produced at the lateral corners. Eyes distinct, though having the visual elements imperfectly developed. Superior antennæ, as a rule, longer than the inferior, and with the last joint of the peduncle short and very movably articulated to the preceding joint, being encompassed at the base by 2 more or less strongly dentated lappets issuing from the end of the former, accessory appendage forming a small linear joint lying inside the base of the flagellum. Inferior antennæ not modified in the male. Anterior lip rounded; posterior one with distinct, though small inner lobes. Mandibles rather strong, cutting edge but slightly dentated, palp elongated and slender, with the terminal joint fully as long as the other 2 combined, and very narrow. First pair of maxillæ comparatively small, with the palp but little expanded distally and the basal lobe unisetose. Second pair of maxillæ with both lobes short and rounded at the tip, the inner one considerably broader than the outer. Maxillipeds rather large, basal lobes partly coalesced, masticatory lobes of moderate size, and setous along the inner edge and the apex, palp very robust, with the last joint strongly developed, and the dactylus unguiform. Gnathopoda subequal both in size and structure, and of rather peculiar structure, the carpus being much elongated and produced inferiorly, at the base, to a setous lobe, its outer part extremely narrow and attenuated, propodos very broad, subquadrangular or transversely elliptical in shape, and affixed to the carpus at the upper posterior corner, palm nearly transverse, and defined below by on obtuse projection armed with several strong spines, its edge sharpened and minutely setous, dactylus slender and curved. The 2 anterior pairs of pereiopoda generally very feeble in structure, the 3 posterior pairs more or less elongated and slender, with the basal joint oblong oval in form. Last pair of uropoda scarcely projecting beyond the others, and having the rami lanceolate and edged with small denticles. Telson elongate, tapering distally, outer part more or less deeply incised.

Remarks. — The present genus, the type of the family, was established by Kroyer in the year 1845, to include an arctic species *E. cuspidatus.* It is chiefly distinguished by the peculiar structure of the gnathopoda, which differs considerably from that in most other Amphipoda. The genus comprises no less than 5 Norwegian species, to be here described, 3 of which are now for the first time established. Besides, a 6th species has been described by Dr. Hansen as *E. Holmii,* from the Kara Sea, and the same form was also collected on the Norwegian North Atlantic Expedition, but was at that time erroneously recorded as *E. cuspidatus.*

1. **Eusirus cuspidatus**, Kroyer.

(Pl. 146).

Eusirus cuspidatus, Krøyer, Nat. Tidsskr. 2 R. p. 501, Pl. 7, fig. 1.

Body comparatively rather robust, though considerably compressed, and having the posterior part of the back distinctly carinated, the carina being produced, in the last 2 segments of mesosome and the first 2 of metasome, to acute, posteriorly-pointing projections. First segment of urosome with a slight dorsal carina in its posterior part. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, rostral projection short and obtuse, lateral corners rather broad, and slightly bilobate. Anterior pairs of coxal plates fully as deep as the body; 1st pair moderately expanded distally, having the anterior corner evenly rounded, the posterior one divided into 3 small serrations; the 2 succeeding pairs somewhat tapering distally, and having likewise 3 small serrations at the infero-posteal corner; 4th pair nearly twice as broad as the preceding pair, and produced posteriorly, below the emargination, to an angular projection. Last pair of epimeral plates of metasome evenly rounded at the lateral corners, and minutely serrated throughout the considerably arched posterior edge. Eyes rather large, and oval reniform in shape. Superior antennæ almost attaining half the length of the body, the first 2 joints of the peduncle about of same length, and both produced at the end to small lappets divided into several obtuse denticles, last joint very short, flagellum about twice the length of the peduncle, and composed of numerous small articulations, without any calceolæ, but carrying fascicles of delicate bristles, accessory appendage extremely small, scarcely attaining the length of the last peduncular joint. Inferior antennæ considerably shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum scarcely attaining the length of those joints combined. Gnathopoda comparatively strongly built, carpal lobe rather prominent, propodos but little broader than it is long, and rounded quadrangular in form, palm very slightly arched, dactylus comparatively strong. Pereiopoda more robust than in the other known species, and densely edged with fascicles of short spines, basal joint of last pair not nearly twice as long as it is broad at the base, posterior edge strongly curved in its upper part and, as in the 2 preceding pairs, finely serrated, dactylus in all pairs rather strong. Last pair of uropoda with the inner ramus somewhat longer than the outer. Telson quite unarmed and very large, reaching nearly to the tip of the last pair of uropoda, outer part slightly tapering and divided at the tip into 2 diverging acuminate lappets, cleft very narrow, firsure-like, and extending about to the middle of the telson. Colour, according to the statement of Boeck, yellowish white, changing into reddish. Length of adult female 24 mm.

Remarks. — This is the species first detected, and ought therefore to be regarded as the type of the genus. It is easily distinguished from the other species by its comparatively strongly built body and appendages, and by the very distinct carina running along the posterior part of the back. It also grows to a larger size than most of the other species.

Occurrence. — I have myself only found a single specimen of this form, that here figured, which was collected, many years ago, at Vardø, east Finmark, from a depth of 20—30 fathoms. Also Boeck records it from the Norwegian coast, but his statement about its occurrence as far south as Kattegat, must be founded upon some error.

Distribution. — Greenland (Kroyer), Spitsbergen (Goës).

2. **Eusirus propinqvus**, G. O. Sars, n. sp.

(Pl. 147, fig. 1).

Body comparatively more slender than in the type species, and having the dorsal carina not nearly so distinct. Last segment of mesosome very slightly elevated at the posterior edge dorsally; the 2 anterior segments of metasome each with a well-marked, posteriorly-pointing, dorsal projection. Cephalon about as in *E. cuspidatus*, except that the lateral corners are nearly transversely truncated at the tip. First pair of coxal plates rather expanded distally, anterior corner narrowly rounded, posterior one with a single small serration; 4th pair having the posterior projection somewhat more prominent than in the type species. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, posterior edge nearly straight, and finely serrated throughout. Eyes rather large, oval reniform, pigment light red. Superior antennæ in female scarcely exceeding in length $^1/_3$ of the body, 1st joint of the peduncle rather large, fully as long as the other 2 combined, and exhibiting at the end posteriorly a small dentiform lappet, 2nd joint having, as usual, encompassing the base of the last joint, 2 lappets, the inner of which is bilobate at the tip, flagellum comparatively short, scarcely attaining the length of the peduncle, and, like the terminal joint of the latter, provided along the posterior edge with distinct calceolæ, accessory appendage very narrow, linear, exceeding in length the last peduncular joint. Inferior antennæ but little shorter than the superior, last joint of the peduncle scarcely attaining the length of the penultimate one, both edged anteriorly with distinct calceolæ, flagellum about half the length of the peduncle, and likewise carrying calceolæ along its anterior edge. Gnathopoda somewhat less robust than in the type species, carpal lobe very narrow, propodos nearly elliptical in form, its breadth being much greater than its length, palm rather arched, dactylus very slender. The 2 anterior pairs of pereiopoda extremely slender, with the meral joint much elongated, fully twice as long as the carpal one. The 3 posterior pairs likewise much more slender than in *E. cuspidatus*, with the propodal joint very narrow and elongated; basal joint of last pair far less expanded, and having the posterior edge slightly concave in the middle, dactylus in all pairs not nearly so strong as in the type species. Last pair of uropoda with the rami narrow lanceolate, the inner but little longer than the outer, both having, besides the usual denticles, on the inner edge a series of delicate setæ. Telson rather narrow, outer part gradually tapering, and having the lateral edges finely spinnulose, terminal lobes acuminate and scarcely diverging, cleft extending not quite to the middle of the telson. Body semipellucid, with a more or less distinct yellowish orange tinge, posterior part of each segment exhibiting generally a somewhat darker, reddish brown hue, antennæ banded with red. Length of adult female 12 mm.

Remarks. — This new species is somewhat intermediate in character between the type species and *E. longipes* of Boeck, differing, however, rather markedly from both in the comparatively short flagella of the antennæ, and the great length of the meral joint of the 2 anterior pairs of pereiopoda. Also the shape of the propodos of the gnathopoda, and that of the telson is somewhat different. From *E. longipes*, to which species it bears a considerable resemblance as to the general habitus, it may, in the living state, at once be distinguished by the very different coloration of the body.

Occurrence. — I have met with this species not rarely in a single locality of the Trondhjemsfjord, at Vennæs, in a depth of 100 to 150 fathoms. It also occurs off the coast of Finmark, where several specimens were collected, many years ago, but at that time was confounded with *E. cuspidatus.* Finally, the same species has been found by the author at Selsøvig, on the Nordland coast. Off the west and south coasts of Norway, on the other hand, I have never met with this form.

3. **Eusirus minutus,** G. O. Sars, n. sp.

(Pl. 147, fig. 2).

Body considerably shorter and stouter than in the last species and, in this respect, more resembling that of *E. cuspidatus.* Posterior part of the back distinctly carinated, the carina being produced, on the last segment of mesosome and the 2 anterior ones of metasome, to well-defined, posteriorly pointing projections. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection well developed, lateral corners transversely truncated at the tip. Coxal plates comparatively smaller than in the 2 preceding species; 1st pair fully as broad as they are deep, and having both the anterior and posterior corners evenly rounded, without any trace of serrations; 4th pair scarcely as deep as the corresponding segment, and having the posterior projection rather blunt. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, which are minutely serrated, upper part of the posterior edge somewhat arched and quite smooth. Eyes only faintly traced in alcoholic specimens, but apparently of the usual oval reniform shape. Antennæ in female comparatively short, and nearly equal in length; the superior ones scarcely exceeding in length $^1/_4$ of the body, 1st joint of the peduncle rather large and thick, considerably exceeding in length the other 2 combined, and produced at the end posteriorly to an acute lappet, 2nd joint unusually short, and having the inner terminal lappet bidentate, flagellum somewhat longer than the peduncle, and composed of 10 articulations only, none of which are provided with calceolæ, accessory appendage very minute. Same antennæ in male much more elongated, having the flagellum about 3 times as long as the peduncle, and composed of numerous articulations, the proximals of which are densely clothed with slender sensory bristles. Inferior antennæ in both sexes of the very same appearance, last joint of the peduncle somewhat shorter and narrower than the penultimate one, flagellum about half the length of the peduncle. Gnathopoda not very strong, carpal process rather produced, though very narrow, propodos subquadrangular in shape, being scarcely shorter than it is broad at the base, its outer part somewhat expanded, palm but slightly curved. Pereiopoda very slender, though somewhat less elongated than in *E. propinqvus*, meral joint of the 2 anterior pairs equalling in length the propodal one, and not nearly twice as long as the carpal joint; basal joint of the 3 posterior pairs rather expanded, and having the posterior edge strongly serrated, that of last pair oval in form, scarcely at all tapering distally. Last pair of uropoda with the outer ramus much smaller than the inner. Telson rather elongated, and gradually tapering from the base to the tip, posterior incision very short, scarcely occupying $^1/_6$ of the length of the telson, terminal lobes acuminate and slightly divergent. Colour in the living state of the animal not yet stated. Length of adult female scarcely exceeding 6 mm.

Remarks. — By its comparatively stout form of body and the distinctly carinated back, this new species somewhat resembles *E. cuspidatus*, differing, however, not only in its very small size, but also in the much shorter antennæ and more slender pereiopoda, as also in the rather different form of the telson.

Occurrence. — I have only seen a few specimens of this form, which were collected in the Trondhjemsfjord, at Rødbjerget, from a very considerable depth, amounting to 400 fathoms.

4. **Eusirus longipes**, Boeck.

(Pl. 148, fig. 1).

Eusirus longipes, Boeck, Crust. amph. bor. & arct. p. 77.

Syn.: Eusirus helvetiæ, Sp. Bate.
» — bidens, Heller.

Body comparatively slender, and less compressed than in the preceding species, with only a very slight indication of a dorsal carina: Each of the 2 anterior segments of metasome produced at the end to a well-marked, posteriorly-pointing, acute projection. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners obtusely truncated at the tip. First pair of coxal plates rather broad in their outer part and having, like the 2 succeeding pairs, 2 small serrations at the infero-posteal corner; 4th pair about as deep as the corresponding segment, posterior projection rather short and blunt. Last pair of epimeral plates of metasome having the posterior edge evenly curved and throughout coarsely serrated. Eyes very large, occupying the whole height of the cephalon in front, and oblong reniform in shape, pigment bright red. Superior antennæ rather elongated, exceeding half the length of the body, 1st joint of the peduncle about the length of the 2nd, but much thicker, and having at the end several small dentiform projections; 2nd joint as usual produced at the tip to 2 lappets encompassing the base of the last joint, the inner of these lappets being divided into 5 denticles, flagellum nearly twice the length of the peduncle, and composed of numerous articulations bearing distinct calceolæ, accessory appendage very narrow, and about as long as the last peduncular joint. Inferior antennæ considerably shorter than the superior, last joint of the peduncle longer than the penultimate one, flagellum about the length of those joints combined, and, like the latter, edged with distinct calceolæ. Gnathopoda moderately strong, carpal process not very large, propodos subquadrangular in shape, but little broader than it is long, palm slightly arcuate, dactylus slender, and curved at the tip. Pereiopoda very slender and elongated, meral joint of the 2 anterior pairs about the length of the propodal one, basal joint of the 3 posterior pairs oblong oval, tapering distally, and having the posterior edge strongly serrated. Last pair of uropoda with the rami subequal in size and narrowly lanceolate. Telson comparatively smaller than in the other species, and gradually tapering distally, cleft occupying about $^1/_3$ of the length of the telson, terminal lobes acuminate and scarcely diverging. Body light straw-coloured, and everywhere mottled with small brick-red pigmentary specks; ova in the marsupial pouch dark bluish green. Length of adult female reaching 13 mm.

Remarks. — The present species was first announced by Boeck in the year 1860, at the meeting of the Scandinavian naturalists in Christiania, and was, somewhat later, described by Sp. Bate as *E. helveticæ*, from an imperfect specimen. According to Boeck the *E. bidens* of Heller is also identical with the present species. It is easily distinguishable from the other species by the presence of only 2 dorsal projections, and by its beautiful pigmentary ornament. From *E. propinqvus,* to which species it bears a rather strong resemblance, both in size and general appearance, it may, on a closer examination, be readily distinguished by the much greater length of the superior antennæ and of the meral joint of the 2 anterior pairs of pereiopoda, as also by the comparatively smaller and less deeply cleft telson. The form recorded by the Rev. Mr. Stebbing, under this name, from the Challenger Expedition, is scarcely identical with Boeck's species.

Occurrence. — The present species is not rarely found along the whole south and west coasts of Norway, in depths ranging from 30 to 100 fathoms. It also occurs in the Trondhjemsfjord, and extends, according to Boeck, even as far north as the Lofoten Isles.

Distribution. — Shetland Isles (Sp. Bate); Firth of Clyde (Robertson); coast of France (Chevreux); Adriatic (Heller).

5. **Eusirus leptocarpus**, G. O. Sars, n. sp.

(Pl. 148, fig. 2).

Body somewhat resembling in form that in the last species, but having the posterior part of the back distinctly carinated, the carina being produced in each of the segments of metasome, the last included, to acute posteriorly pointing projections. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, lateral corners truncated at the tip. First pair of coxal plates rather expanded, and broader than they are deep, anterior corner narrowly rounded, posterior one unarmed; the 2 succeeding pairs likewise rather broad in proportion to their depth; 4th pair having the edge, below the posterior projection, angularly bent. Last pair of epimeral plates of metasome with the posterior edge but slightly curved and finely serrated throughout, the serrations being also continued for some distance on the inferior edge. Eyes but very faintly traced in alcoholic specimens, though apparently of the usual shape. Superior antennæ but little exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle about the length of the 2nd, both being rather elongated, flagellum considerably shorter than the peduncle, and without any calceolæ, accessory appendage very narrow, and fully as long as the last peduncular joint. Inferior antennæ not much shorter than the superior, last joint of the peduncle scarcely attaining the length of the penultimate one, flagellum about half as long as the peduncle, and without any calceolæ. Gnathopoda comparatively large, with the carpus much elongated and greatly attenuated in its outer part, propodos extremely broad, the breadth being fully twice the length, palm evenly curved, dactylus very narrow and elongated. Pereiopoda rather slender, meral joint of the 2 anterior pairs somewhat longer than the propodal joint, basal joint of the 3 posterior pairs comparatively narrow, and finely serrated on the posterior edge. Last pair of uropoda with the rami subequal and narrowly lanceolate in form. Telson comparatively larger than in *E. longipes*, but otherwise of a very similar structure. Colour in the living state of the animal not yet stated. Length of adult female 8 mm.

Remarks. — This new species somewhat resembles *E. longipes*, as to its general appearance, yet, on a closer examination, is easily distinguishable, not only by its greatly inferior size, but also by several well-marked structural details, for instance, by the presence of a distinct dorsal projection of the last segment of metasome, in addition to the 2 usual ones, by the much shorter superior antennæ, which, moreover, are without any trace of calceolæ, and finally, by the rather different shape of the gnathopoda.

Occurrence. — Some specimens of this form were collected, many years ago, in the inner part of the Hardangerfjord, at Utne, from a depth of 300—400 fathoms, but were at that time confounded with *E. longipes.* It also occurs in the Trondhjemsfjord, where a few specimens were collected, in the summer of 1891, likewise from a very considerable depth.

Gen. 2. **Rhachotropis,** S. Smith, 1883.

Syn.: Amphithonotus, Stimpson (part).
» Tritropis, Boeck.

Body scarcely at all compressed, and more or less spiny, the posterior part having a distinct dorsal keel, and, on each side of this, a subdorsal one, both generally elevated to acute, posteriorly pointing projections. Cephalon more or less produced in front, and having the lateral corners narrow linguiform. Coxal plates comparatively small; 1st pair expanded in front to a narrow lobe stretching along the side of the cephalon; 4th pair not much larger than the preceding pairs, and but very slightly emarginated posteriorly. Epimeral plates of metasome rounded, those of last segment serrated on the hind edge. Eyes more or less distinctly developed. Superior antennæ, as a rule, in female shorter than the inferior, and provided with a very small, nodiform, though distinctly biarticulate accessory appendage tipped by a rather fully-developed auditory seta and a few small spines. Both pairs of antennæ in male much more elongated than in female. Oral parts nearly of same structure as in *Eusirus.* Gnathopoda very strongly built and nearly equal, carpus comparatively short, and produced below to a setiferous lobe, its distal part not attenuated, propodos of considerable size and oblong oval in form, with the palm very oblique. Pereiopoda slender and elongated, the 3 posterior pairs rapidly increasing in length, basal joint of last pair more expanded than that of the 2 preceding pairs. Last pair of uropoda with the rami more or less foliaceous in character. Telson comparatively large, and having the outer part deeply cleft.

Remarks. — The genus *Amphithonotus* of Costa, which is here quoted as a synonym, is a most collective one, including, as it does, forms belonging to several different genera, of which probably none are referable to the present genus. But Stimpson subsequently referred to it a species, *A.*

cataphractus, which evidently belongs to the genus here treated of, though he also included in it some of the species of Costa. In 1870 Boeck restricted the genus to the limits now generally adopted, and substituted the generic name *Tritropis* instead of *Amphithonotus,* which was already appropriated to a genus of Reptilia. As, however, the name proposed by Boeck was also appropriated, Prof. Sidney Smith changed it in 1883 to *Rhachotropis.* The genus is evidently nearly allied to *Eusirus*, in spite of the rather different shape of the gnathopoda, and ought therefore undoubtedly to be included in the same family. It comprises, like the genus *Eusirus*, 5 Norwegian species, 2 of which are now for the first time established. Besides these, 4 other species have been described, viz., the North American form *R. cataphractus* Stimpson, a form, *R. kergueleni* Stebbing, from the Challenger Expedition, a Greenlandic species, *R. oculata* Hansen, and a form recently described by Mr. Chevreux from the Expedition of the «Hirondelle» as *Tritropis grimaldii.*

6. **Rhachotropis aculeata,** (Lepechin).

(Pl. 149).

Oniscus aculeatus, Lepechin, Acta Petropol. 1778. 1., p. 227, Pl. 8, fig. 1.

Syn.: Talitrus Edwardsii, Sabine.
» Amphithoë Edwardsii, Owen.
» Amphithonotus Edwardsii, Sp. Bate.
» — aculeatus, Goës.

Body rather thick, with the anterior part of the back broadly vaulted. The last 2 segments of mesosome and those of metasome distinctly tricarinate, dorsal keel elevated to strong, posteriorly-pointing spines, having on the metasome in front a small secondary projection, subdorsal keels likewise produced in each of the segments to spiniform processes. First segment of urosome with 2 successive dorsal projections. Cephalon rather thick in its posterior part, and somewhat gibbous above, rostral projection very large and horizontally projected, reaching nearly to the tip of the basal joint of the superior antennæ, lateral corners forming a narrow triangular, and somewhat deflexed lobe, defined posteriorly by an angular incision. First pair of coxal plates somewhat securiform in shape, both the anterior and posterior corners being produced to a sharp deflexed point, distal edge between both slightly concaved; the 2 succeeding pairs terminating each in a short, recurved point; 4th pair scarcely larger than the 2 preceding pairs, and truncated at the tip; 5th and 6th pairs with a slight ridge running across the posterior lobe. Last pair of epimeral plates of metasome obtusely rounded at the lateral corners, posterior edge subangular above the middle, and very finely serrated. Eyes large and convex, rounded triangular in form, with the anterior edge somewhat insinuated, visual elements very conspicuous, pigment dark brown. Superior antennæ nearly attaining half the length of the body, 1st joint of the peduncle rather large, equalling in length the other 2 combined, and produced at the end posteriorly to a spiniform projection, last joint very short and, like the preceding one, edged inside with small calceolæ, flagellum considerably longer than the peduncle, and composed of numerous (about 65) short articulations, each having anteriorly a distinct calceola. Inferior antennæ somewhat longer than the superior, the last 2 joints of the peduncle nearly of equal length, and provided posteriorly with slender setæ, flagellum longer than the peduncle, and composed of about 85 articulations carrying, like the 2 outer joints of the peduncle, calceolæ anteriorly. Gnathopoda powerfully developed, and nearly of equal size, propodos in both pairs more than twice as long as the 3 preceding joints combined, and oblong oval in form, palm slightly arched, and defined posteriorly by a distinct obtuse projection armed with several spines, dactylus elongated and evenly curved. Pereiopoda moderately slender, basal joint of penultimate and antepenultimate pairs rather small, and having the posterior edge produced above the middle to an acute triangular projection; last pair somewhat exceeding half the length of the body, and having the basal joint rather broad in its proximal part, with the posterior edge angular above the middle and produced below to an acuminate corner. Last pair of uropoda with the inner ramus somewhat longer than the outer, both narrowly lanceolate in form, and densely edged with spinules. Telson conically tapering distally, and likewise densely edged with small spinules, cleft occupying about $^1/_3$ of the length of the telson, terminal lobes acuminate. Colour, as noted in a young specimen collected at Hasvig, Finmark, rather gorgeous, the body being variegated all over with brown, orange, and pure white, gnathopoda tinged with a beautiful carmine. Length of adult female reaching 30 mm.

Remarks. — This magnificent form was described as early as in the year 1778 by Lepechin as *Oniscus aculeatus*, and subsequently recorded by Owen under another name, viz., *Amphithoë Edwardsii.* Goës restored the older specific name of Lepechin, and referred the species to the genus *Amphithonotus* of Costa. It is a very distinct species, and easily recognizable both by its large size and by its spiny armature and greatly produced rostrum. The form described by the author at an earlier date, from a solitary specimen, as *Tritropis avirostris*, I now find is nothing else than a young one of the present species, in which, by some accident, the rostrum had become deformed in a peculiar manner.

Occurrence. — Off the coast of Norway, this species would seem to be wholly restricted to the arctic region, being found occasionally off the Finmark coast, in depths ranging from 50 to 100 fathoms.

Distribution. — Arctic Ocean, widely distributed: Greenland (Hansen), Spitsbergen (Goës), Arctic America (Lepechin), Labrador (Packard), Jan Mayen (Norw. North Atl. Exp.), Franz Joseph's Land (Heller), the Barents Sea (Hoek), the White Sea (Lepechin), the Kara Sea (Stuxberg), the Siberian Polar Sea (Stuxberg).

7. **Rhachotropis Helleri**, Boeck.

(Pl. 150).

Tritropis Helleri, Boeck, Crust. amph. bor. & arct. p. 79.

Body considerably more slender than in the preceding species, and having the subdorsal keels restricted to the metasome only. The first 3 segments of mesosome with the posterior edge slightly raised dorsally; last segment of mesosome and those of metasome each with a distinct, though not very large dorsal projection, the posterior one much smaller and more obtuse than the 2 preceding ones; projections of the subdorsal keels well-defined. First segment of urosome produced at the end dorsally to a single acuminate projection. Cephalon about the length of the first 2 segments of mesosome combined, and evenly vaulted above, rostral projection quite short, lateral corners narrow triangular, and defined posteriorly by a rectangular incision. First pair of coxal plates narrowly produced anteriorly, with the distal edge straight, and none of the corners pointed; the 2 succeeding pairs rounded, with the posterior corner somewhat angular; 4th pair a little broader than the preceding ones and slightly emarginated posteriorly; penultimate and antepenultimate pairs without any lateral ridge. Last pair of epimeral plates of metasome with the posterior edge evenly curved and serrated throughout. Eyes rather large, rounded oval in form, with the visual elements distinct, though somewhat less conspicuous than in the preceding species, pigment light brown. Antennæ in female considerably less elongated than in *R. aculeata,* and carrying scattered, partly plumose setæ; the superior ones scarcely exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle not attaining the length of the other 2 combined, last joint about half as long as the penultimate one, both edged inside with calceolæ, flagellum scarcely exceeding the length of the peduncle, and composed of 12—15 articulations only, each carrying a small calceola. Same antennæ in male more than twice as long as in female, with the flagellum very slender and elongated, and provided at the base with fascicles of delicate sensory filaments. Inferior antennæ in female a little longer than the superior, the last 2 joints of the peduncle about of equal length, and edged anteriorly with distinct calceolæ, flagellum scarcely longer than those joints combined, and composed of about 14 articulations; those of male much more elongated, with the flagellum very slender and nearly twice the length of the peduncle. Gnathopoda rather strong and somewhat unequal in size, the posterior ones being the larger, propodos in both pairs oblong oval in form, about twice as long as it is broad, palm occupying nearly the whole length of the inferior edge, and defined posteriorly by a very slight angle bearing several slender spines. Pereiopoda comparatively more slender than in the type species, with more elongated dactyli; the 3 posterior pairs rapidly increasing in length, and having the basal joint simple, oblong oval in form; last pair about equalling $^3/_4$ of the length of the body. Last pair of uropoda with the rami nearly equal-sized and subfoliaceous in shape, having the outer part abruptly tapering to a point; marginal spinules small and few in number. Telson quite unarmed, and less strongly attenuated distally, cleft very narrow, fissure-like, and extending nearly to the middle of the telson. Body whitish, semipelluced, and variegated with irregular, partly confluent patches of a clear, light-reddish pigment; antennæ, buccal area, and legs partly tinged with the same pigment. Length of adult female scarcely exceeding 12 mm, that of male 10 mm.

Remarks. — The present species, established by Boeck, is easily distinguishable from the preceding one by its comparatively more slender and less strongly spined body, the short rostral projection, the different shape of the coxal plates and of the basal joint of the posterior pairs of pereiopoda, and finally, by the form of the telson and the uropoda. It is also far inferior in size. Boeck most probably confounded this and the next species; but his figures and description undoubtedly refer to the present form.

Occurrence. — I have met with this species not unfrequently in several places both off the south and west coasts of Norway, in depths ranging from 50 to 100 fathoms. According to Boeck it extends northwards to the Lofoten Isles, but it has not yet been observed off the Finmark coast.

Distribution. — About the distribution af the species, it is at present somewhat difficult to state anything with certainty, as most probably the next species has generally been confounded with it. To judge from its occurrence off the coast of Norway, it would seem on the whole to be a more southern form than the former.

8. **Rhachotropis macropus**, G. O. Sars, n. sp.

(Pl. 151, fig. 1).

Very like *R. Helleri,* as to its general appearance, but having none of the anterior segments of mesosome raised dorsally. Dorsal projections comparatively small, that of last segment of metasome exactly of same appearance as the 2 preceding ones, that of urosome of moderate size. Cephalon and coxal plates nearly exactly as in the said species. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, posterior edge not much curved, but strongly serrated, the serrations being continued for some distance also on the inferior edge. Eyes large, rounded, with distinct visual elements, pigment dark brown, with a whitish coating. Superior antennæ in female comparatively longer than in *R. Helleri*, attaining nearly half the length of the body, 2nd joint of the peduncle fully as long as the 1st, last joint exceeding half the length of the former, both densely edged with calceolæ inside, flagellum scarcely attaining the length of the peduncle. Inferior antennæ nearly of same length as the superior, last joint of the peduncle considerably longer than the penultimate one, flagellum not nearly attaining the length of those joints combined. Gnathopoda much of same structure as in *R. Helleri.* Pereiopoda, on the other hand, much more elongated and slender, last pair of quite an unusual length, exceeding even that of the whole body. Last pair of uropoda with the rami broadly lanceolate in form, and having but a small number of minute, marginal spinules, the inner ramus somewhat larger than the outer. Telson very large, reaching considerably beyond the uropoda, and quite unarmed, outer part but very slightly tapering distally, cleft extending to the middle of the telson, terminal lobes somewhat unequal. Body whitish, ornamented with irregular patches of a reddish orange pigment, the patches being generally smaller and less confluent than in *R. Helleri;* antennæ, buccal area, and legs partly tinged with the same pigment. Length of adult female attaining 16 mm.

Remarks. — In its general appearance this new species is so very like *R. Helleri,* as easily to be confounded with it, especially as the brittleness of the pereiopoda causes them in most of the specimens captured to be more or less broken. In uninjured specimens the extraordinary length and slenderness of the pereiopoda, and more especially of those of last pair, will at once serve for distinguishing this form from any of the other species. Moreover the last dorsal projection of the metasome is in this form exactly of same appearance as in the 2 preceding ones, whereas in *R. Helleri* it is always found to be smaller and more obtuse. Without a closer examination, however, both species may easily be confounded, and I find it indeed most probable, that the statements of other authors about the occurrence of *R. Helleri* in the Arctic Seas, may more properly be interpreted as applying to the species here treated of.

Occurrence. — The species would seem to occur along the whole coast of Norway, from the Christianiafjord to Vadsø, and is generally met with in very considerable depths, ranging from 100 to 400 fathoms, muddy bottom.

Distribution. — Skagerak (Stockholm Museum), the Barents Sea (Hoek, as T. Helleri), the Kara Sea (Stuxberg, do.), Spitsbergen (Norw. North. Atl. Exped.).

9. **Rhachotropis leucophthalma,** G. O. Sars, n. sp.

(Pl. 151, fig. 2).

Body somewhat less slender than in the last 2 species, otherwise of a very similar appearance. None of the segments of mesosome produced dorsally; those of metasome distinctly tricarinate, with well-defined dorsal and subdorsal projections; the projection of 1st segment of urosome unusually large and triangularly pointed. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, lateral corners very narrow, linguiform. Coxal plates nearly as in the last 2 species. Last pair of epimeral plates of metasome broadly rounded at the lateral corners, posterior edge considerably curved and, as usual, strongly serrated. Eyes quite rudimentary, and replaced by 2 somewhat irregular patches of a yellowish white pigment, without any trace of visual elements. Superior antennæ not nearly attaining half the length of the body, the first 2 joints of the peduncle about of same length, last joint much smaller, flagellum about the length of the peduncle. Inferior antennæ a little longer than the superior, and of the usual structure. Gnathopoda comparatively strongly built, and of much the same appearance as in the 2 preceding species. Pereiopoda rather slender and elongated, though not nearly to such an extent as in *R. macropus*, the last pair being far from attaining the length of the whole body. Uropoda nearly as in the latter species. Telson, on the other hand, not nearly so much elongated, and having the outer part more distinctly attenuated, cleft extending about to the middle. Body light yellowish, partly tinged with a diffuse, reddish orange pigment, assuming, on the buccal area and the gnathopoda, a pinkish hue. Length of adult female reaching 14 mm.

Remarks. — The present new species is very nearly allied to the 2 preceding ones, though apparently distinct, exhibiting, as it does, several well-marked peculiarities, among which the rudimentary nature of the eyes is the most prominent.

Occurrence. — I have met with this form in 3 different localities of the Norwegian coast, viz., at Jelsø in Ryfylke, at Sunde in the outer part of the Hardangerfjord, and in the Trondhjemsfjord, at Rodbjerget. In all the localities it occurred rather sparingly, in a very considerable depth ranging from 100 to 400 fathoms.

Distribution. — Skagerak (Stockholm Museum).

10. **Rhachotropis tumida**, G. O. Sars.

(Pl. 152).

Tritropis tumida, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 104, Pl. 5, fig. 7.

Body rather short and stout, and much inflated in its anterior part, which is quite smooth and evenly vaulted above. Metasome, as usual, tricarinate, but having the carinæ comparatively low, and their projections small, dorsal process of last segment altogether absent. Urosome without any dorsal projections. Cephalon about the length of the first 2 segments of mesosome combined, and very broad, rostral projection somewhat prominent, lateral corners forming on each side a narrow linguiform, somewhat deflexed lobe defined posteriorly by an even sinus. Coxal plates small, and nearly of same shape as in the 3 preceding species. Last pair of epimeral plates of metasome obtusely rounded at the lateral corners, and having, as usual, the posterior edge strongly serrated, the serrations being also continued for some distance on the inferior edge. Eyes very large and convex, rounded oval, with the anterior edge more or less distinctly insinuated, visual elements very conspicuous, pigment dark brown. Superior antennæ in female comparatively short, not attaining $1/3$ of the length of the body, and without distinct calceolæ, 1st joint of the peduncle rather thick, and longer than the 2nd, last joint scarcely half the length of the former, flagellum longer than the peduncle, and composed of 9 articulations only. Inferior antennæ but little longer than the superior, the last 2 joints of the peduncle about of same length, flagellum half the length of the peduncle. Both pairs of antennæ in male much more elongated, 1st joint of the flagellum in the superior ones very large, and densely clothed with delicate sensory hairs. Gnathopoda rather powerful and somewhat unequal, the propodos of the anterior ones being regularly oval, with the breadth considerably more than half the length, in the posterior ones more oblong in form, palm in both pairs evenly curved, and defined posteriorly by a slight angle bearing a single small spinule, dactylus long and curved. Pereiopoda rather slender, but of moderate length, the last pair not exceeding $^2/_3$ of the length of the body; basal joint of antepenultimate pair rather narrow, that of last pair considerably broader. Last pair of uropoda with the rami narrow lanceolate in form, the inner somewhat larger than the outer. Telson comparatively less prolonged than in the other species, and having on each side, in front of the middle, a rather fully developed auditory seta, outer part conically tapering, cleft extending about to the middle of the telson. Colour somewhat variable, and generally very beautiful, the body being all over more or less distinctly variegated with partly confluent patches of a magnificent carmine, having between them small specks of a golden yellow; antennæ and legs banded by the same pigment. Length of adult female scarcely exceeding 6 mm.; that of male somewhat less.

Remarks. — This is a very distinct species, easily distinguishable from the other forms, both by its very short and stout body, and by several other characteristics mentioned in the above diagnosis. Also the colour is rather peculiar and very beautiful.

Occurrence. — I have met with this form rather frequently in numerous places off the Norwegian coast, from the Christianiafjord to Vadsø. It is generally found in moderate depths, ranging from 30 to 50 fathoms. Occasionally it even ascends to the sublittoral region, being found in about 10 fathoms.

Distribution. — Greenland (Hansen), the Kara Sea (Hansen).

Fam. 18. Calliopiidæ.

Body, as a rule, slender and compressed, with well-developed metasome and urosome. Cephalon of moderate size, and but little produced in front, postantennal corners more or less prominent. Coxal plates small, or of moderate size. Antennæ slender, sometimes greatly elongated, the superior ones generally without any accessory appendage. Oral parts normally developed. Gnathopoda in most of the forms rather feeble in structure, and more or less distinctly subcheliform. Pereiopoda, as a rule, slender and elongated, with the basal joint of the 3 posterior pairs laminarly expanded, Branchial lamellæ simple; incubatory lamellæ large and broad. Last pair of uropoda differing more or less from the preceding pairs, and having the rami compressed lanceolate. Telson of moderate size, and generally entire.

Remarks. — This new family is established to include the greater part of the genera referred by Boeck to his subfamily *Atylinæ*, the family *Atylidæ* being restricted to the forms most nearly allied to the genus *Atylus* and, besides, including the subfamily *Dexamininæ* of Boeck. In some points the present family shows a near relationship to the *Eusiridæ*, and the genus *Haliragoides*, described below, would seem indeed to form, as it were, a connecting link between the two. Yet I think it may be convenient to keep the 2 families apart, as there are some characteristics, by which most of the forms pretty well distinguish themselves from the *Eusiridæ*, such as the much less powerful structure of the gnathopoda, and the considerably smaller telson, which moreover, with the one exception of the genus *Pontogeneia*, is entire, not, as in the former, cleft. There is another family to which the present one likewise bears a considerable resemblance, viz., that of the *Paramphithoidæ*, and indeed some of the species described above under this head, were for this reason referred by Boeck to his genus *Amphithopsis*, belonging to the family here treated of. In the restriction here adopted, the family comprises 8 Norwegian genera, 2 of which are now for the first time established. In addition to these, the arctic genus *Cleïppides* of Boeck belongs to this family, as also the genus *Stenopleura* of Stebbing, and perhaps also the genus *Harpinioides* of the same author.

Gen. 1. **Haliragoides,** G. O. Sars, n.

Body slender and elongated, without any dorsal projections. Cephalon comparatively large, subtruncated in front, and having the postantennal corners produced to greatly projecting lobes. Coxal plates very small, 1st pair, however, rather expanded in their outer part. Superior antennæ considerably shorter than the inferior, and without any accessory appendage. Inferior antennæ in both sexes greatly elongated. Anterior lip rounded; posterior lip with distinct, though small inner lobes. Mandibles strong, with the cutting edge coarsely dentated, and the molar expansion large and massive, palp comparatively slender, and having the last joint much shorter than the 2nd. Maxillæ of the usual structure. Maxillipeds of moderate size, with the basal and masticatory lobes nearly of equal size, palp rather robust. Gnathopoda subequal and rather feeble, carpus elongated and scarcely expanded below, propodos ovate in form, with the palm very oblique. Perciopoda extremely slender and elongated, with greatly produced and attenuated dactyli; the 3 posterior pairs successively increasing in length, basal joint of last pair much larger than that of the 2 preceding pairs. Last pair of uropoda very fully developed, projecting far beyond the others. Telson oval triangular, not incised at the tip.

Remarks. — The present new genus is founded upon the form described, at an earlier date, by the author as *Haliragas inermis.* A closer examination of this form has indeed shown it to differ in some particulars rather materially from the species generally referred to the genus *Halirages* of Boeck, so as more properly to be regarded as the type of a separate genus. Thus the extraordinary development of the postantennal corners of the cephalon is rather peculiar, and also the gnathopoda differ considerably as regards the shape of the propodos, which somewhat resembles that in the genus *Rhachotropis.* The genus *Stenopleura* of Stebbing would seem to have much in common with the present genus; but as the superior antennæ in that genus are stated to be longer than the inferior, and moreover the gnathopoda are much more strongly built, I find it unadvisable at present, to combine both. The genus comprises as yet but a single species, to be described below.

1. **Haliragoides inermis**, G. O. Sars.

(Pl. 153).

Halirages inermis, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 103, Pl. 5, fig. 5.

Body very narrow, and having the back evenly rounded throughout, without any trace of keels. Cephalon considerably exceeding in length the first 2 segments of mesosome combined, and rather deep in its posterior part, rostral projection very slight, lateral corners small, angular, postantennal ones greatly produced, forming on each side a narrow, linguiform, deflexed lobe, finely serrated anteriorly. First pair of coxal plates obliquely expanded distally, anterior corner rather produced, and narrowly rounded at the tip; the 2 succeeding pairs rounded quadrangular in form, and having at the infero-posteal corner a group of about 6 delicate bristles; 4th pair scarcely more than half as deep as the corresponding segment, being somewhat broader than the 2 preceding ones, and more distinctly emarginated posteriorly; 5th and 6th pairs twice as broad as they are deep, and having the posterior lobe larger than the anterior and evenly rounded. Last pair of epimeral plates of metasome having, like the preceding pair, the lateral corners produced to a short acute projection, posterior edge evenly curved and quite smooth. Eyes rather large, and oval in form, visual elements imperfectly developed, pigment light red. Superior antennæ scarcely attaining half the length of the body, peduncle comparatively short and massive, with the joints successively decreasing in size, 1st joint rather thick, and divided at the end into several acute lappets, flagellum about 3 times as long as the peduncle, and composed of about 28 articulations, the 1st of which is very much elongated. Inferior antennæ of quite an unusual length, exceeding even that of the whole body, basal joint very broad and produced at the end posteriorly to a strong, deflexed spine, the last 2 joints of the peduncle nearly equal-sized, flagellum extremely slender and elongated, being from 5 to 6 times as long as the peduncle, and composed of numerous articulations, the 1st of which is much the largest. Gnathopoda nearly exactly alike, both in size and structure, carpus slightly widening distally, and having inferiorly several transverse rows of fine bristles, propodos considerably shorter than the carpus and somewhat expanded, being regularly ovate in form, about twice as long as it is broad, palm occupying the greater part of the inferior edge, and defined posteriorly by an obtuse angle without any spines but having across it a transverse series of delicate bristles. Pereiopoda extremely brittle and densely edged with fascicles of short bristles; the 2 anterior pairs fully twice as long as the gnathopoda, and having the propodal joint very much prolonged, equalling in length the 2 preceding joints combined; the 3 posterior pairs rapidly increasing in length, the last pair considerably exceeding half the length of the body, basal joint of antepenultimate pair rather small, that of last pair more than twice as large, and considerably expanded in its proximal part, posterior edge slightly sinuated and obscurely serrated; dactylus in all pairs extremely elongated, and sharply pointed. The 2 anterior pairs of uropoda rather small, especially the 2nd pair; last pair, on the other hand, very fully developed, nearly attaining the length of the whole urosome, basal part somewhat elongated, rami narrowly lanceolate, the inner one a little longer than the outer, both being densely edged with small spinules and also, along the inner edge, with slender setæ. Telson not nearly reaching to the end of the basal part of the last pair of uropoda, and oval triangular in form, tip tridentate, the median projection considerably larger than the other 2. Colour rather gorgeous, the body being variegated all over with red, orange and pure white. Length of an apparently young specimen 10 mm.

Remarks. — The present form described at an earlier date by the author as a species of *Halirages,* somewhat resembles the *Paramphithoë fragilis* of Goës, which latter form was referred by Boeck to his genus *Tritropis.* It is, however, very markedly distinguished from that form, by the absence of any keels on the metasome, by the rather different shape of the gnathopoda, and by the structure of the telson, which is entire, not, as in that form, cleft. It would thus seem that both forms are not even congeneric. Most of the specimens collected have the appearance of being still immature; but I have a single apparently adult female specimen, found at Bodø, and measuring in length 14 mm., in which, however, most of the appendages are broken, but which otherwise fully agrees with the other specimens.

Occurrence. — I have met with this form occasionally both off the west coast of Norway and in the Trondhjemsfjord, as also along the Nordland coast as far north as Hasvig, west Finmark. It occurred, in every instance, in a very considerable depth, ranging from 100 to 300 fathoms. Owing to the great brittleness of the appendages, it is rather seldom to get a specimen quite uninjured, and I have therefore been obliged to give a figure of a comparatively small specimen, in which all the appendages still remained. Out of Norway this form has not yet been recorded.

Gen. 2. **Halirages,** Boeck, 1870.

Syn.: Paramphithoe, Goës (part).
» Pherusa, Stimpson.

Body slender and elongated, with some of the segments produced dorsally to acute, posteriorly-pointing projections. Cephalon not very large, lateral corners short and broad, postantennal ones of moderate size, and acutely produced. Coxal plates comparatively small, 1st pair not expanded distally. Both pairs of antennæ greatly elongated, and carrying small calceolæ arranged in several rows; the superior ones having the last joint of the peduncle produced inside to a thin lamellar expansion, but without any accessory appendage. Anterior lip of the usual rounded form; posterior lip without any inner lobes. Mandibles strongly developed, with the palp very large, and the terminal joint greatly produced and somewhat curved. Maxillæ of the usual structure. Maxillipeds with the basal and masticatory lobes well developed, palp large and robust. Gnathopoda small and feeble in structure, with elongated carpus and rather narrow oblong propodos, the palm of which is quite short. Pereiopoda slender, the 3 posterior pairs successively increasing in length, and having the basal joint rather expanded. Penultimate pair of uropoda rather small; last pair well developed, reaching beyond the others, and having the rami subequal in size and narrowly lanceolate. Telson unarmed, outer part not incised.

Remarks. — The genus is here taken in a more restricted sense than was done by Boeck, who referred to it also the species of the next genus. From the latter it is chiefly distinguished by the great length of the superior antennæ, and by the presence of calceolæ on both pairs in the 2 sexes. Moreover, the mandibular palp differs by its great size, and the very full development of its terminal joint. Besides the type species described below, the *H. quadrispinosus*, recorded by the author from the Norwegian North Atlantic Expedition, undoubtedby belongs to this genus, and also the very distinct form described by the Rev. Mr. Stebbing from the Challenger Expedition, as *H. huxleyanus*, would seem to be congeneric.

2. **Halirages fulvocinctus**, (M. Sars).

(Pl. 154).

Amphithoë fulvocincta, M. Sars, Christ. Vid. Selsk. Forh. 1854, p. 141.

Syn.: Pherusa tricuspis, Stimpson.
» Paramphithoë fulvocincta, Goës.

Body slender, with the anterior part of the back evenly rounded; last segment of mesosome and the 2 anterior ones of metasome each produced dorsally to a well-defined, acute projection. Cephalon shorter than the first 2 segments of mesosome combined, rostral projection very slight, lateral corners broadly rounded, postantennal ones produced to a short acute projection. Anterior pairs of coxal plates less deep than the body, and rounded quadrangular in form, increasing successively to the 4th pair, which are slightly emarginated posteriorly, with the infero-posteal corner somewhat produced. Epimeral plates of metasome rather large, those of penultimate pair produced at the lateral corners to a sharp, recurved point, those of last pair forming a broad lamellar expansion, transversely truncated at the tip and finely serrated on the edge, its inferior and superior corners being acutely produced. Eyes rather large and of oval form, visual elements well defined, pigment bright red. Superior antennæ in female exceeding $^2/_3$ of the length of the body, 1st joint of the peduncle about the length of the other 2 combined, last joint very small, and having the terminal lamella obtusely truncated at the tip, flagellum more than 4 times as long as the peduncle, and composed of numerous short articulations, the 1st of which is much the largest. Inferior antennæ still longer than the superior, and having the last 2 joints of the peduncle about equal-sized, flagellum nearly 4 times as long as the peduncle, and, like that of the superior ones, carrying small calceolæ, arranged in a double row. Both pairs of antennæ in male still more elongated than in female, otherwise of much the same structure. Anterior gnathopoda with the carpus slightly widening distally, and carrying several fascicles of slender bristles inferiorly, propodos about the length of the carpus, and oblong in form, palm nearly transverse, and much shorter than the hind margin, from which it is defined by an obtuse angle, armed with several small spines, dactylus comparatively short. Posterior gnathopoda somewhat more elongated than the anterior, otherwise of much the same structure. Pereiopoda of moderate length, and densely edged with fascicles of slender spinules, basal joint of last pair considerably larger than that of the 2 preceding pairs, and oval in form, with the posterior edge smooth, and the infero-posteal corner narrowly rounded; dactylus in all pairs rather short. Last pair of uropoda comparatively large, with the basal part somewhat elongated, and edged interiorly with small spinules, rami about twice as long as the basal part and densely edged with small spinules having between them slender bristles. Telson extending nearly to the end of the basal part of the last pair of uropoda, and oblong in form, about twice as long as it is broad at the base, and gradually tapering distally, tip transversely truncated, or very slightly emarginated. Body pellucid, with a faint yellowish tinge, and having across each of the segments a transverse band of a beautiful orange pigment, antennæ and legs partly banded with the same pigment. Length of adult female reaching 19 mm.

Remarks. — This form was first described by my late father as *Amphithoë fulvocinta*, and was subsequently referred by Goës to the genus *Paramphithoë*. Boeck regarded it as the type of his genus *Halirages*. The *Pherusa tricuspis* of Stimpson is undoubtedly, as first pointed out by Goës, identical with the present species. From the very nearly related form, *H. quadrispinosus*, described by the author from the Norwegian North Atlantic Expedition, the present species is easily distinguishable by the presence of only 3 dorsal projections, as also by the rather different form of the last pair of epimeral plates of metasome, and of the telson.

Occurrence. — Along the whole west and north coasts of Norway, this form is rather frequently met with, in moderate depths ranging from 10 to 50 fathoms. Especially off the Finmark coast it often occurs in great abundance in the Laminarian region, among algæ and Hydroida.

Distribution. — Arctic Ocean, widely distributed: Greenland (Hansen), Arctic America (Miers), Labrador (S. Smith), Spitsbergen (Goës), the Murman coast (Jarzynsky), the Kara Sea (Hansen), the Siberian Polar Sea (Stuxberg).

Gen. 3. **Apherusa**, Walker, 1891.

Syn.: Pherusa, Sp. Bate (part).
» Atylus, Sp. Bate (part).
» Paramphithoë, Bruzel. (part).
» Halirages, Boeck (part).
» Calliopius, Boeck (part).

General form of body about as in *Halirages*, dorsal projections present or wanting. Cephalon with the postantennal corners more or less produced. Coxal plates of moderate size, and successively increasing to the 4th pair, which is the largest, and more or less emarginated posteriorly. Antennæ without any trace of calceolæ, and rather unequal in length, the superior ones being much shorter than the inferior, and having the last joint of the peduncle simple, not forming any terminal expansion. Mandibles rather strong, but having the palp not nearly so largely developed as in *Halirages*, its terminal joint being much shorter than the 2nd. Maxillipeds likewise with far less strong palps. Gnathopoda subequal and, as a rule, small and feeble, with the propodos oblong in form. Pereiopoda of the usual structure. Last pair of uropoda more or less projecting beyond the others, and having the rami lanceolate and spinous on the edges. Telson of moderate size and without any cleft.

Remarks. — The present genus is very nearly allied to *Halirages*, and its validity may therefore perhaps be questioned. There are, however, as shown by the above diagnosis, to be found some points of difference in the structure of the antennæ and the oral parts, which seem to be of generic value. As, moreover, several species may be most conveniently grouped in each of these genera, I find it suitable to keep both apart. As to the generic name *Apherusa*, it has recently been proposed by Mr. A. Walker to replace that of *Pherusa* Leach, the latter being inadmissible, since the species upon which Leach founded his genus has turned out to be only the female of *Gammarella brevicaudata*. The species to which Mr. Walker applied the generic name *Apherusa*, is that described below as *A. Jurinii*, which, in my opinion, is congeneric with the 4 other species here included in the same genus.

3. **Apherusa bispinosa** (Sp. Bate).

(Pl. 155, fig. 1).

Dexamine bispinosa, Sp. Bate, Ann. Nat. Hist. 2 ser. XIX, p. 142.

Syn.: Amphithoë macrocephala, M. Sars.
» Paramphithoë elegans, Bruzel.
» Atylus bispinosus, Sp. Bate.
» Halirages bispinosus, Boeck.

Body rather slender, especially in the male, and having the 2 anterior segments of metasome each produced dorsally to an acute, posteriorly-pointing projection. Cephalon comparatively large, exceeding in length the first 2 segments of mesosome combined, rostral projection distinctly prominent and acute, lateral corners small, angular, postantennal ones produced to a short, somewhat deflexed point. Anterior pairs of coxal plates scarcely as deep as the body; 1st pair slightly expanded distally, and having the anterior corner subangular; the 2 succeeding pairs successively somewhat larger, and rounded quadrangular in form; 4th pair the largest, about as broad as they are deep, and slightly emarginated posteriorly. Penultimate pair of epimeral plates of metasome produced at the lateral corners to an acute recurved projection; last pair forming a broad lamellar expansion truncated at the tip, and somewhat resembling that in *Helirages fulvocinctus,* being, however, more coarsely serrated, and having the upper corner strongly produced, subuncinate; above it occurs, moreover, a bidentate projection of the hind margin defined from the former by a deep sinus. Eyes large and of a roundish form, with well developed visual elements and dark brown pigment. Superior antennæ in female scarcely exceeding $^1/_3$ of the length of the body, and having the peduncle comparatively short, with the 1st joint rather thick, and longer than the other 2 combined, flagellum nearly 4 times as long as the peduncle, and composed of about 30 articulations. Inferior antennæ nearly twice as long as the superior, last joint of the peduncle somewhat larger than the penultimate one, flagellum very slender and elongated. Both pairs of antennæ in male considerably more elongated than in female, and having the opposite edges of the peduncles clothed with fascicles of delicate sensory bristles. Gnathopoda very slender and feeble in structure, carpus of the anterior ones somewhat longer than in the posterior, propodos in both pairs narrow oblong, with the palm somewhat oblique, though much shorter than the hind margin. from which it is defined by on obtuse angle bearing several slender spines. Pereiopoda moderately slender, and densely edged with fascicles of short spinules; propodal joint of the 2 anterior pairs rather elongated; the 3 posterior pairs rapidly increasing in length, and having the basal joint oval in form and slightly serrated posteriorly, that of last pair, as usual, the largest. Last pair of uropoda rather fully developed, reaching considerably beyond the others, rami longer than the basal part, and edged with strong spines, their opposite edges being, besides, very finely serrated, inner ramus somewhat larger than the outer, and having its outer edge considerably bulging out at the base. Telson oblong triangular in form, fully twice as long as it is broad at the base, tip very minutely tridentate. Colour rather variable, now light yellowish, with small specks of a dark brown or purplish pigment, now variegated with large irregular patches of a very dark, nearly black hue. Length of adult female generally not exceeding 6 mm.

Remarks. — This form was first described by Sp. Bate as a species of *Dexamine*, and was subsequently referred by the same author to the genus *Atylus* of Leach. It has, however, in reality very little affinity to either of these genera, which, according to the author's opinion, do not even belong to the present family. Boeck included the species in his genus *Halirages*, and though it in fact bears a much closer affinity to that genus, I think it will be more convenient to place it in the nearly-allied genus *Apherusa* of Walker. The *Amphithoë macrocephala* of my late father and the *Paramphithoë elegans* of Bruzelius are both undoubtedly identical with the present species. It may be readily distinguished from the other species of this genus by the distinctly prominent rostral projection, the large rounded eyes, and the peculiar shape of the last pair of epimeral plates of metasome. Besides the usual littoral form, is occasionally found another form or variety living in somewhat greater depths. This variety grows to a somewhat larger size, and has the eyes comparatively larger and less darkly pigmented, as also the body of a lighter hue, but otherwise no essential difference is to be found between the 2 forms.

Occurrence. — This species is very frequently found along the whole south and west coasts of Norway, occurring, as a rule, in quite shallow water among algæ. According to Boeck, it extends northwards as far as Tromsø, Finmark, and Mr. Schneider has also found it occasionally in the same tract. It is a very active little creature, swimming about with great agility, the males especially being extremely rapid in their movements.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kategat (Meinert), coast of France (Chevreux), Mediterranean at Algeria (Chevreux) and at Goletta (the author).

4. **Apherusa borealis** (Boeck).

(Pl. 155, fig. 2).

Halirages borealis, Boeck, Amph. bor. & arct. p. 116.

Body somewhat more elongated than in *A. bispinosa,* and having, as in that species, the 2 anterior segments of metasome produced dorsally to posteriorly pointing projections, which however are somewhat less prominent. Cephalon comparatively smaller than in the said species, not even attaining the length of the first 2 segments of mesosome combined, rostral projection very slight, lateral corners obtusely rounded at the tip, postantennal ones but little produced. Anterior pairs of coxal plates about as deep as the body; 1st pair scarcely at all expanded distally, and, like the 2 succeeding pairs, rounded quadrangular in form; 4th pair of somewhat unusual shape, being obliquely rounded, and scarcely widening distally. Last pair of epimeral plates of metasome but very little expanded, lateral corners terminating in a short and blunt point, posterior edge evenly curved and perfectly smooth. Eyes comparatively small, and of rounded form. Superior antennæ in female considerably exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle equalling in length the other 2 combined, flagellum about 3 times as long as the peduncle, and composed of 22 articulations. Inferior antennæ, as usual, somewhat longer than the superior, and having the last 2 joints of the peduncle about equal-sized. Gnathopoda somewhat less slender than in the preceding species, and having the carpus comparatively shorter and broader, propodos exceeding the carpus in length, and of the usual narrow oblong form. Pereiopoda comparatively more strongly built than in that species, with the meral joint rather broad in proportion to its length, and the dactylus very strong; basal joint of penultimate and antepenultimate pairs rounded oval in form, that of last pair much larger and more oblong in form, posterior edge in all 3 pairs quite smooth and evenly curved. Last pair of uropoda comparatively less elongated than in *A. bispinosa,* with the rami but little longer than the basal part, and regularly lanceolate in form, opposite edges not serrated, marginal spines few in number. Telson triangular in shape, scarcely twice as long as it is broad at the base, tip simple, pointed. Colour in the living state of the animal not yet stated. Length of adult female scarcely attaining 8 mm.

Remarks. — This species, established by Boeck, is nearly allied to *A. bispinosa,* though easily distinguishable by the small size of the eyes and the very different shape of the last pair of epimeral plates of metasome.

Occurrence. — I have myself only met with this form in a single place, viz., at Rost, the outmost of the Lofoten Isles, where a few specimens were collected, during the Norwegian North Atlantic Expedition, from a depth of 6 to 10 fathoms, sandy bottom. Boeck's description was made from a solitary specimen found off the Nordland coast. Out of Norway it has not yet been recorded.

5. **Apherusa tridentata** (Bruzel).

(Pl. 156, fig. 1).

Paramphithoë tridentata, Bruzelius, Amphip. Gammar. K. Vet. Akad. Handl. III, p. 74, fig. 13.

Syn.: Halirages tridentatus, Boeck.

Body comparatively less slender than in the 2 preceding species, and somewhat compressed; last segment of mesosome and the 2 anterior ones of metasome each produced dorsally to well-defined, acute projections. Cephalon fully as long as the first 2 segments of mesosome combined, and rather deep, rostral projection comparatively small, lateral corners obtusely rounded, postantennal ones produced to a rather prominent spiniform projection. Anterior pairs of coxal plates about as deep as the body; 1st pair not expanded distally, but having the anterior corner somewhat angular and the distal edge, like the 2 succeeding pairs, minutely serrated; 4th pair much larger than the preceding ones and considerably widening distally, posterior edge deeply sinuated, infero-posteal corner rather produced. Penultimate pair of epimeral plates of metasome with the posterior edge coarsely serrated; last pair forming a broad lamellar expansion, the lower corner of which is acutely produced, whereas the upper one is boldly curved, posterior edge of the expansion divided into 12 strong serrations, having between them small bristles. Eyes in female of moderate size, in male considerably larger, in both sexes oval reniform, with the anterior edge distinctly insinuated, pigment very dark. Superior antennæ in female scarcely exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle about the length of the other 2 combined, flagellum scarcely more than twice as long as the peduncle, and composed of about 40 short articulations, the 1st of which is much the largest. Inferior antennæ nearly twice the length of the superior, and having the flagellum very slender, about 3 times as long as the peduncle. Gnathopoda of the usual slender form and feeble structure, propodos about the length of the carpus, and very slightly widening distally, palm, as usual, short, and defined below by an obtuse angle. Pereiopoda moderately strong, basal joint of the 3 posterior pairs considerably expanded, and having the hind edge distinctly serrated, that of last pair much the largest, and oval in form. Last pair of uropoda reaching but slightly beyond the others, inner ramus somewhat larger than the outer, and having the outer edge bulging out at the base. Telson oblong oval in form, not fully twice as long as it is broad at the base, tip transversely truncated, and divided into a number of irregular, partly bidentate serrations, having between them small bristles. Colour, according to the statement of Mr. Schneider, sometimes very gorgeous, the body being mottled all over with a magnificent carmine red. Length of adult female attaining 14 mm.

Remarks. — This form was first described by Bruzelius as a species of his genus *Paramphithoë,* and was subsequently referred by Boeck to the genus *Halirages.* It is, however, undoubtedly congeneric with the 2 above described species, and ought therefore to be placed within Walker's genus *Apherusa.* From the said species it is easily distinguishable by the presence of 3 well-defined dorsal projections, and by the last 2 strongly serrated pairs of epimeral plates of metasome, as also by the shape of the telson.

Ocurrence. — I have myself only met with a few specimens of this form, which were collected, many years ago, off the Finmark coast in comparatively shallow water among algæ. According to the statement of Mr. Schneider, it occurs in some places pretty plentifully, thus in the Kvænangenfjord, where numerous specimens were collected among the red algæ, especially *Delesseria,* and it has also been observed by the same author at Vardø, east Finmark. The specimens examined by Bruzelius were likewise from Finmark, and that from which Boeck made his description was collected at the Lofoten Isles, the southernmost locality, where it has as yet been observed. Out of Norway it has not been recorded; for Boeck's statement about its occurrence off the coast of Bohuslän, must certainly arise from some error.

6. **Apherusa megalops,** G. O. Sars.

(Pl. 156, fig. 2).

Halirages megalops, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 102, Pl. 5, fig. 4.

Body comparatively more slender than in the last species, and having only the 2 anterior segments of metasome produced dorsally. Cephalon rather large, considerably exceeding in length the first 2 segments of mesosome combined, rostral projection extremely small, lateral corners short and broad, transversely truncated at the tip, postantennal ones produced to a very strong, deflexed, spiniform projection, minutely serrated on its anterior edge. Anterior pairs of coxal plates comparatively small, scarcely as deep as the body; the first 3 pairs rounded quadrangular in form, and slightly serrated on their distal edge; 4th pair but little expanded distally. Penultimate pair of epimeral plates of metasome not serrated at the posterior corners; last pair forming a broad, transversely truncated expansion regularly serrated on the edge, and having the inferior corner not at all produced, the superior one slightly upturned, and defined above by a deep sinus, in front of which there is a slight projection of the posterior edge. Eyes of quite an unusual size and obliquely oval in form, nearly contiguous above, visual elements very conspicuous, pigment dark brown. Superior antennæ scarcely attaining $^1/_3$ of the length of the body, 1st joint of the peduncle about the length of the other 2 combined, and produced at the end posteriorly to a small dentiform projection, flagellum twice the length of the peduncle. Inferior antennæ fully twice the length of the superior, and of the usual structure. Gnathopoda of much the same appearance as in *A. tridentata.* Pereiopoda somewhat more slender, with comparatively longer dactyli, basal joint of the 3 posterior pairs less expanded, being oblong oval in form and having the posterior edge but slightly serrated. Last pair of uropoda with the rami somewhat more elongated, otherwise of much the same structure as in the said species. Telson oval triangular, scarcely twice as long as it is broad at the base, tip somewhat blunted and bidentate. Body semipellucid, with a yellowish orange tinge, each segment being bordered posteriorly by a narrow transverse band of a light reddish hue; antennæ and legs partly banded with the same pigment. Length of adult female 11 mm.

Remarks. — The present species bears some resemblance both to *A. tridentata* and *A. bispinosa.* With the latter it agrees in the presence of only 2 dorsal projections, with the former in the shape of the lateral corners of the cephalon and of the gnathopoda. From both it distinguishes itself prominently by the extraordinary development of the eyes, by the greatly produced postantennal corners of the cephalon, and by the shape of the last pair of epimeral plates of metasome, and that of the telson.

Occurrence. — I have only seen a single specimen of this form, an adult female, which was found in the Varangerfjord, at Bugø, in a depth of 50—60 fathoms. Out of Norway it has not yet been recorded.

7. **Apherusa Jurinii** (M-Edw.).

(Pl. 157, fig. 1).

Amphithoë Jurinii, M-Edwards, Ann. Sciences Nat. 1830. Vol. XX, p. 376.

Syn.: Amphithoë norvegica, Rathke.
» Paramphithoë norvegica, Bruzel.
» Pherusa fucicola, Sp. Bate (part).
» Calliopius norvegicus, Boeck.

Body rather slender, and having the back evenly rounded throughout, without any dorsal projections. Cephalon not very large, about equalling in length the first 2 segments of mesosome combined, rostral projection quite short, lateral corners broadly rounded, postantennal ones not much produced. Anterior pairs of coxal plates of moderate size, about as deep as the body, and successively increasing to the 4th pair, which are rather expanded distally, with the posterior edge deeply emarginated above, and produced below the emargination to an acuminate projection. Last pair of epimeral plates of metasome forming a broadish expansion, the inferior corner of which is dentiform, the superior one triangularly produced, edge of the projection quite smooth. Eyes of moderate size and oval reniform in shape, visual elements well developed, pigment dark brown. Superior antennæ about equalling in length $^1/_3$ of the body, 1st joint of the peduncle rather thick, and not quite attaining the length of the other 2 combined, flagellum twice as long as the peduncle, and composed of 26—28 articulations bearing fascicles of delicate bristles. Inferior antennæ exceeding the superior by about $^1/_3$ of their length, peduncle rather densely setous on both edges, flagellum more than twice its length. Gnathopoda of the usual feeble structure, propodos however somewhat dilated in the middle, nearly subfusiform in shape, and considerable longer than the carpus, palm somewhat oblique, though scarcely exceeding in length the hind margin. Pereiopoda comparatively rather strongly built, with hook-shaped dactyli, basal joint of the 3 posterior pairs rather expanded, and having the posterior edge quite smooth, that of last pair, as usual, much the largest. Last pair of uropoda extending but little beyond the others, rami narrowly lanceolate, and edged with slender spines. Telson oblong triangular, not quite twice as long as it is broad at the base, tip obtusely pointed, and having on each side 2 very small spinules. Body light straw-coloured, and variegated all over with irregular flexuous patches of a clear reddish-orange pigment. Length of adult female scarcely attaining 8 mm.

Remarks. — This form was at first announced by M-Edwards in the year 1830 as *Amphithoë Jurinii*, and was subsequently described and figured in his well-known work on the Crustacea. The *Amphithoë norvegica* of Rathke is undoubtedly identical with M-Edwards' species, and this is also the case with the form described by Sp. Bate in his «Catalogue of Amphipoda in the British Museum» as *Pherusa fucicola* Leach[1]; but the Amphipod he subsequently describes and figures under the same name in his work on the British sessile-eyed Crustacea, from the type specimen of Leach, is evidently an entirely different form. Mr. Walker has first called attention to this fact and has shown, that the *Pherusa fucicola* of Leach is indeed nothing else than the female of *Gammarella brevicaudata*, M. Edw., a form which does not even belong to the same family. Under such circumstances, the Leachian species must be cancelled altogether, and even his genus *Pherusa* discarded from the Zoology, as founded on a misapprehension. It is on these suggestions that Mr. Walker has restored the specific name proposed by M-Edwards and changed the generic name *Pherusa* to *Apherusa*. I quite agree with that author, that this species cannot properly be referred to the genus *Calliopius*, as proposed by Boeck, differing, as it does, very markedly both in the structure of the antennæ, and in that of the gnathopoda. On a closer anatomical examination of the animal, I have not found any essential characteristics whatever, to warrant its generic separation from the 4 species described in the preceding pages, and the genus *Apherusa* has therefore been extended to include also these forms. From the latter the present species is at once distinguished by the absolute want of any dorsal projections.

Occurrence. — I have only met with this form in a single locality off the Jæderen coast, where it occurred not rarely in quite shallow water among algæ. Rathke collected it at Christiansund, and Boeck records it also from Haugesund.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux), Mediterranean (Chevreux).

Gen. 4. **Calliopius,** Lilljeb. 1865.

Syn.: Calliope, Sp. Bate.

Body comparatively strongly built, with none of the segments produced dorsally. Cephalon with a rather small rostral projection, and having the postantennal corners scarcely at all produced. Coxal plates of moderate size, and successively increasing to the 4th pair, which are much the largest, and distinctly emarginated in their upper part posteriorly. Eyes well developed, being much larger in male than in female. Antennæ not very slender, and subequal in length, both having the flagella divided into numerous short and very sharply defined articulations carrying posteriorly large calceolæ, last peduncular joint of the superior ones produced at the end posteriorly to a triangular lappet, which is likewise provided with a number of distinct calceolæ, accessory appendage wanting. Antennæ in male scarcely at all differing from those in female. Oral parts resembling those in the genus *Apherusa*, except that the mandibular palps are comparatively larger, with the terminal joint fully as long as the 2nd. Gnathopoda much more powerfully developed than in that genus, carpus quite short, and produced below to a setiferous lobe, propodos very large, with the palm occupying the greater part of its length, and imperfectly defined. Pereiopoda more or less strongly built, the 3 posterior pairs successively somewhat increasing in length, and having the basal joint moderately expanded. Last pair of uropoda scarcely reaching beyond the others, basal part comparatively short, rami subequal and lanceolate in form, being edged with small spinules, and partly also with ciliated setæ. Telson quite unarmed, linguiform in shape, and not incised or dentated at the tip.

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[1] As pointed out by Mr. Walker, the figure referring to this form is not fig. 9, as stated both in the text and the plate, but fig. 10.

Remarks. — This genus was established by Sp. Bate in the year 1855, but as the generic name he proposed, *Calliope*, was already appropriated in Zoology, it was changed in the year 1865 by Prof. Lilljeborg to *Calliopius*. The genus is chiefly distinguished from the 2 preceding ones by the comparatively less slender and subequal antennæ (which, moreover, do not show any perceptible difference in the 2 sexes, being in both provided with well-developed calceolæ), further, by the comparatively much stronger development of the gnathopoda, and finally, by the structure of the last pair of uropoda and the telson. It comprises as yet but 2 species, which, however, by most authors, have been confounded with each other.

8. **Calliopius Rathkei** (Zaddach).

(Pl. 157, fig. 2).

Amphithoë Rathkei, Zaddach, Synops. Crust. Pruss. prodrom. p. 6.

Syn.: Calliope grandoculis Sp. Bate (male).
» Calliopius læviusculus, autorum (part).

Body comparatively stout and somewhat tumid in its anterior part, with the segments rather sharply defined. Cephalon fully as long as the first 2 segments of mesosome combined, rostral projection short but distinct, lateral corners subtruncate at the tip. Anterior pairs of coxal plates not very broad, and rapidly increasing in size to the 4th pair, which are narrowly truncated at the tip, and scarcely as broad as they are deep. Last pair of epimeral plates of metasome produced at the lateral corners to a small, but distinct, recurved point, posterior edge considerably curved. Eyes rather large, especially in the male, and obliquely oval in form, pigment dark brown. Superior antennæ about equalling $^1/_3$ of the length of the body, 1st joint of the peduncle not attaining the length of the other 2 combined, last joint about half as long as the 2nd, and having the terminal lappet quite short, with only 2 calceolæ, flagellum not quite twice the length of the peduncle, and composed of about 20 articulations, the 1st of which is the largest. Inferior antennæ scarcely exceeding in length the superior, and having the flagellum but little longer than the peduncle, its 1st joint rather large. Anterior gnathopoda with the carpal lobe rather narrow and but sparingly setous, propodos oblong ovate in form, about twice as long as it is broad, palm nearly twice as long as the hind margin, from which it is but very slightly defined, its edge nearly straight, and armed in its posterior half with 5 strong denticles; dactylus moderately strong and slightly curved. Posterior gnathopoda somewhat larger than the anterior, otherwise of much the same structure. Pereiopoda not very strongly built, and edged with fascicles of slender spines, basal joint of the 3 posterior pairs oval in form, with the posterior edge evenly curved and quite smooth. Last pair of uropoda with the rami fully twice as long as the basal part, the inner one being a little larger than the outer and very acutely produced at the tip, its inner edge densely spinulose, and having besides a series of ciliated setæ. Telson narrow linguiform, fully twice as long as it is broad, and nearly of equal breadth throughout, tip evenly rounded. Body semipellucid, with a yellowish violet tinge, and mottled with irregular specks of a clear orange hue, each segment being, moreover, bordered posteriorly by a narrow band of a dark, reddish-brown pigment; on the anterior part of the back occurs, besides, a rather conspicuous rounded shield of a silvery lustre, occupying the dorsal face of the 3rd and 4th segments of mesosome. Length of adult female scarcely exceeding 6 mm.

Remarks. — The above-described form, which I believe is that recorded by Zaddach as *Amphithoë Rathkei*, has generally been confounded with the next species, being considered as only a small variety. On a closer examination of both forms, both in the living state and preserved, I have, however, found certain minor differences between the two, which would seem to warrant their specific difference. Thus the colour is rather different, as also the form and size of the coxal plates, and the terminal lappet of the last peduncular joint of the superior antennæ is in this species much smaller than in the next. The *Calliope grandoculis* of Sp. Bate I regard as the male of this species.

Occurrence. — The present form is very frequently met with along the whole south and wests coast of Norway, and would seem, to judge from some remarks made by Mr. Schneider, to occur also off the Finmark coast, in the neighbourhood of Tromsø. It is a pronounced littoral form, occurring often in great shoals, swimming actively about close to the beach, and successively ascending it according as the tide flows up.

Distribution. — British Isles (Sp. Bate), coast of Bohuslän (Stockholm Museum), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux).

9. **Calliopius læviusculus** (Kroyer).

(Pl. 158).

Amphithoë læviusculus, Krøyer, Grønlands Amphipoder. Danske Vid.-Selsk. Afhandl. VII, p. 281, Pl. 3, fig. 13.

Syn.: Amphithoë serraticornis, M. Sars.
» Paramphithoë læviuscula, Bruzel.
» Calliope læviuscula, Sp. Bate.

Body on the whole more strongly built than in the preceding species, though perhaps somewhat more elongated of form, and having the segments of metasome very sharply defined, causing the upper contour of that division to be obtusely jagged. First segment of urosome with a conspicuous transverse depression dorsally. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, rostral projection very slight, lateral corners obtusely rounded. Anterior pairs of coxal plates comparatively larger and broader than in *C. Rathkei,* and exceeding in depth the corresponding segments, the first 3 pairs oval quadrangular in form; 4th pair broader than they are deep, and having the distal edge obliquely curved. Last pair of epimeral plates of metasome scarcely at all produced at the lateral corners, which are nearly rectangular, posterior edge but slightly curved. Eyes in female of moderate size, in male considerably larger, being in both sexes oval reniform in shape, pigment very dark. Superior antennæ equalling $^1/_3$ of the length of the body, 1st joint of the peduncle about the length of the other 2 combined, terminal lappet of last joint very large, triangular, extending beyond the 1st joint of the flagellum, and having a row of 8 calceolæ, flagellum somewhat longer than the peduncle, and composed of 20—30 articulations, very sharply defined, so as to cause the posterior edge of the flagellum to be conspicuously serrated. Inferior antennæ scarcely longer than the superior, and having the flagellum about the length of the peduncle, and likewise exhibiting a prominently serrated aspect of the hind margin. Gnathopoda very strongly built, carpal lobe well-developed and densely setous, propodos much inflated at the base, nearly obpyriform in shape, and not having the palm distinctly defined, dactylus strong and curved. Pereiopoda much more strongly built than in the preceding species, and having the meral joint especially in the 3 posterior pairs, considerably expanded and produced at the end, basal joint about of same form as in *C. Rathkei*, that of last pair being rather large, especially in the male. Last pair of uropoda comparatively larger than in the preceding species, both rami being edged with ciliated setæ in addition to the usual denticles. Telson oblong linguiform, somewhat dilated at the base, and having the outer part evenly rounded off. Colour uniformly light olive-green, with a somewhat irregular whitish area occupying the anterior part of the back. Length of adult female reaching 12 mm., that of male 13—14 mm.

Remarks. — This is the species originally described by Krøyer and that upon which the genus *Calliope* of Sp. Bate was founded. It is very nearly allied to *C. Rathkei*, from which, however, on a closer examination, it may be distinguished, not only by its much larger size and different colour, but also by the comparatively larger and broader coxal plates, the somewhat differently shaped last pair of epimeral plates of metasome, the much more fully developed terminal lappet of the last peduncular joint of the superior antennæ, and finally, by the comparatively more strongly built gnathopoda and pereiopoda. The form recorded by my late father as *Amphithoë serraticornis*, is undoubtedly identical with the present species. Some specimens of a *Calliopius* kindly sent to me from Dr. Hansen, and collected in the northern part of the Pacific in lat. 45° N., long 139° E., I am unable to distinguish from this species, which thus would seem to have a most extensive distribution.

Occurrence. — Off the whole coast of Finmark this species is rather abundantly found in comparatively shallow water, from 3 to 30 fathoms, among algæ. It also occurs occasionally off the west coast of Norway, as far south as Karmø.

Distribution. — Greenland (Krøyer), Spitsbergen (Goës), Labrador (Packard), British Isles (Sp. Bate); northern part of Pacific (Copenhagen Museum).

Gen. 5. **Pontogeneia,** Boeck, 1870.

Body comparatively slender, with none of the segments produced dorsally. Cephalon of moderate size, with a very short rostral projection, and the postantennal corners somewhat produced. Coxal plates comparatively small, 4th pair the largest, and distinctly emarginated posteriorly in their upper part. Antennæ slender and elongated, the superior ones being somewhat shorter than the inferior, and without any accessory appendage. Antennæ in male much more elongated than in female, and having the opposite edges of the peduncles clothed with large calceolæ. Oral parts nearly as in the genus *Calliopius*, except that the basal part of the maxillipeds appears somewhat larger and more laminar. Gnathopoda subequal, and of very feeble structure, the carpus being considerably prolonged, and scarcely expanded below, propodos rather narrow, with the palm shorter than the hind margin. Pereiopoda of the usual appearance, basal joint of the 3 posterior pairs rather expanded. Last pair of uropoda with the basal part quite short, rami subequal and lanceolate in form. Telson unarmed and deeply cleft.

Remarks. — The present genus, established by Boeck, is nearly allied to the 3 preceding ones, differing however, very materially in the structure of the telson, which, unlike what is generally the case in the present family, is not entire, but deeply cleft. In the feeble structure of the gnathopoda, it somewhat resembles the genera *Halirages* and *Apherusa*. It comprises as yet only a single species, to be described below.

10. **Pontogeneia inermis** (Krøyer).

(Pl. 159).

Amphithoë inermis, Krøyer, Grønlands Amphipoder. Danske Vid.-Selsk. Afhandl. VII, p. 275, Pl. 3, fig. 11.

Syn.: Amphithoë crenulata, Krøyer (male).
» Atylus inermis, Sp. Bate.
» — crenulatus, Sp. Bate.
» Paramphithoë inermis, Goës.

Body rather slender and compressed, wiht the back evenly rounded throughout. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection very small, lateral corners short and obtusely rounded, being defined posteriorly by an angular incision, postantennal corners forming on each side a triangular lobe partly obtecting the basal joint of the inferior antennæ. The 3 anterior pairs of coxal plates rounded quadrangular in form, and having their distal edge minutely crenulated; 4th pair considerably larger, about as deep as the corresponding segment, and produced posteriorly, below the emargination, to an angular projection. Last pair of epimeral plates of metasome forming a broadish expansion truncated at the tip, and having the inferior corner slightly produced, the superior one abruptly curved, its edge quite smooth. Eyes oblong reniform in shape, with light red pigment. Antennæ in female without any trace of calceolæ; the superior ones nearly half as long as the body, 1st joint of the peduncle scarcely longer than the 2nd but somewhat thicker, last joint half the length of the former, and produced at the end posteriorly to a rather small triangular lappet, flagellum about twice the length of the peduncle, and composed of numerous short articulations. Inferior antennæ a little longer than the superior, and having the last 2 joints of the peduncle about equal-size, and the flagellum fully twice as long as the peduncle. Antennæ in male much more fully developed than in female, and having the opposite edges of the last 2 joints of the peduncles bordered by a number of unusually large calceolæ, flagella very slender and elongated, without any calceolæ. Anterior gnathopoda with the propodos shorter than the carpus, and but very slightly widening distally, palm somewhat oblique, though scarcely half as long as the hind margin, from which it is defined by a very slight angle armed with a transverse row of small spines. Posterior gnathopoda scarcely longer than the anterior, and of a very similar structure, except that the propodos appears somewhat more expanded in its outer part, being nearly oblong triangular in form. Pereiopoda moderately slender, and edged with fascicles of small spines, the 3 posterior pairs successively increasing in length, and having the basal joint rounded oval in form, with the posterior edge perfectly smooth; that of last pair much the largest. Last pair of uropoda projecting somewhat beyond the others, rami more than twice as long as the basal part, and edged with small spinules and slender bristles. Telson reaching considerably beyond the basal part of the last pair of uropoda, and oblong oval in form, cleft extending beyond the middle, and slightly widening posteriorly, terminal lobes obtusely pointed. Colour in the living state of the animal not yet stated. Length of adult female reaching 12 mm.; that of male somewhat less.

Remarks. — This form was first described by Krøyer as *Amphithoë inermis,* and subsequently referred by Sp. Bate to the genus *Atylus* of Leach. Boeck, however, adverting to its material difference from the species of that genus, proposed to regard it as the type of a separate genus. The *Amphithoë* *crenulata* of Krøyer is undoubtedly, as first pointed out by Boeck, only the male of this species.

Occurrence. — I have never myself met with this form, and even Boeck does not record it at all from the coast of Norway. On looking over his collections, I have, however, found a few specimens of this form labelled Karmø, southwest coast of Norway, and through the kindness of Dr. Hansen I have, moreover, had an opportunity of examining some well-marked specimens in the Copenhagen Museum, collected, according to the label, likewise off the west coast of Norway. I therefore feel entitled to introduce this form in the fauna of Norway.

Distribution. — Arctic Ocean: Greenland (Krøyer), the Siberian Polar Sea (Stuxberg).

Gen. 6. Laothoë[1]), Boeck, 1870.

Body slender, though scarcely at all compressed, with the back quite smooth. Cephalon rather large and thick, with a very slight rostral projection. Coxal plates not very large. Eyes distinct and of the usual structure. Antennæ slender, the superior ones being shorter than the inferior, and having the 2 outer joints of the peduncle quite short, accessory appendage wanting. Buccal area very massive and greatly projecting. Anterior lip rounded triangular; posterior lip without any inner lobes. Mandibles very strong, masticatory part greatly projecting, and having the cutting edge divided into a series of coarse teeth, secondary lamella distinct on both mandibles, molar expansion thick and massive, palp of moderate size, with the terminal joint shorter than the 2nd. First pair of maxillæ with the masticatory lobe rather large, and armed at the end with strong denticulated spines, basal lobe of moderate size, and carrying a number of rather short but thick ciliated setæ, palp very small, its terminal joint being quite rudimentary, nodiform. Second pair of maxillæ with both lobes rather produced, the inner one edged with a small number of coarse denticulated spines. Maxillipeds with the basal lobes normally developed, and rather large, masticatory lobes of quite an unusual size, forming very large and broad lamellæ, reaching to the end of the palp, and having their inner edge regularly serrated throughout, palp comparatively slender. Gnathopoda very small and feeble in structure, carpus rather elongated, propodos narrow oblong, with the palm very short. Pereiopoda of the usual structure. Last pair of uropoda projecting somewhat beyond the others, rami subequal and lanceolate in form. Telson comparatively broad, squamiform, entire.

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[1]) As the term *Laothoës,* according to Boeck, has been long ago appropriated in Zoology, I think it may be suitable to substitute the feminine form of the same name.

Remarks. — This genus, established by Boeck, differs considerably from those treated of in the preceding pages, as regards the structure of the oral parts, and especially is the structure of the 1st pair of maxillæ and that of the maxillipeds rather peculiar. But otherwise it shows itself to be a true member of the family *Calliopiidæ*, as defined above. It comprises as yet but a single species, to be described below.

11. **Laothoë Meinerti**, Boeck.

(Pl. 160).

Laothoës Meinerti, Boeck. Crust. amph. bor. & arct. p. 122.

Body rather elongated, and nearly cylindric in form, with the back evenly rounded throughout. Cephalon about the length of the first 2 segments of mesosome combined, and rather deep, rostral projection very small, lateral corners somewhat deflexed, and narrowly rounded at the tip, being defined posteriorly by an angular notch, postantennal ones rectangular. The 3 anterior pairs of coxal plates oval quadrangular in form, and not very unequal in size; 4th pair somewhat expanded in their outer part, and slightly emarginated posteriorly, with the infero-posteal corner somewhat projecting. Last pair of epimeral plates of metasome rather large, and scarcely at all produced at the lateral corners, posterior edge evenly curved. Eyes oblong oval in form, somewhat widening below, visual elements well developed, pigment light red. Superior antennæ (in female) not attaining half the length of the body, 1st joint of the peduncle rather thick, and much longer than the other 2 combined, flagellum very slender, about 4 times as long as the peduncle, and composed of numerous small setiferous articulations. Inferior antennæ exceeding the superior ones by about 1/3 of their length, the last 2 joints of the peduncle about equal-sized, flagellum fully 3 times as long as the peduncle. Anterior gnathopoda with the carpus slightly dilated in the middle, and nearly fusiform in outline, propodos about same length, and narrow oblong in form, palm nearly transverse, and scarcely half as long as the hind margin. Posterior gnathopoda somewhat more slender than the anterior, with the propodos very narrow, nearly linear in form. Pereiopoda moderately slender, and edged with fascicles of slender spines, the 3 posterior pairs successively increasing in length, and having the basal joint oblong oval in form, with the posterior edge quite smooth, that of last pair, as usual, much the largest. Last pair of uropoda with the basal part of moderate size, rami about twice its length, and edged with small spinules only. Telson oval quadrangular in form, somewhat hollowed above, and having the edges quite smooth, tip transversely truncated, or very slightly emarginated in the middle. Body pellucid, with a yellowish tinge, some of the segments having across them a more or less distinctly defined band of an orange hue; ova in the marsupial pouch pale violet. Length of adult female 8 mm.

Remarks. — This form was described by Boeck from a single, somewhat incomplete specimen, which may be the cause of some strange errors involved in his description. Thus he speaks of a third dorsal eye, which in reality does not exist, and the superior antennæ are said to be much more elongated than the inferior, whereas the reverse is the case. As, moreover, no figures were reproduced, I have long been in doubt about the determination of this form. Having however recently found in the collections of Boeck his type specimen, I have convinced myself about the identity of the form here described with his species. As is the case with most of the forms belonging to this family, it is very brittle, and it is therefore seldom that a specimen is taken quite uninjured.

Occurrence. — The species would seem to be very rare, and only to be found in considerable depths. The specimen described by Boeck was taken in the inner part of the Hardangerfjord, at Utne, from a depth of 300 to 500 fathoms. I have myself found it quite solitary in the following places: at Sunde, outer part of the Hardangerfjord, in the Trondhjemsfjord at Vennæs, at Apelvær, Namdal, and at Kvalo, on the Nordland coast. Out of Norway it has not yet been recorded.

Gen. 7. **Amphithopsis,** Boeck, 1870.

Body evenly vaulted above and very tumid in its anterior part, with the coxal plates spread out laterally. Urosome unusually prolonged. Cephalon not very large, with a small rostral projection, and having the postantennal corners nearly obsolete. Eyes distinct. Antennæ exceedingly elongated and slender, nearly equal in length, the superior ones with a distinct, though very small accessory appendage. Buccal area not much projecting. Anterior lip of the usual rounded form; posterior lip without any inner lobes. Mandibles moderately strong, with the cutting part not much produced, and the molar expansion short and broad, palp very large, with the terminal joint much expanded. Maxillæ of the usual structure. Maxillipeds having both the masticatory and basal lobes well developed, palp comparatively stout and robust. Gnathopoda very small and feeble in structure, and nearly of equal length, carpus somewhat elongated, propodos gradually widening distally, and having the palm transverse. The 2 anterior pairs of pereiopoda of moderate length, the 3 posterior pairs increasing greatly in size, and having the basal joint much expanded. The 2 anterior pairs of uropoda nearly equal-sized and very slender, with the inner ramus much longer than the outer, and linear in form; last pair with the basal part quite short, rami mucroniform and very unequal, the outer one being much smaller than the inner, both edged with small spinules. Telson very small, unarmed and entire.

Remarks. — The present genus, established by Boeck, is here taken in a much more restricted sense than was done by that author, who referred to it, besides the form described below, 3 other species, 2 of which have already been treated of in this work as belonging each to a separate genus of the family *Paramphithoidæ*, the 3rd being described farther on as the type of another genus of the present family. As the form, which Boeck expressly indicates as the type of his genus *Amphithopsis*, is *A. longicaudata*, his generic name ought to be confined to that species. In the restriction here adopted, the genus is a very distinct one, differing, as it does, in several points very materially from the other *Calliopiidæ*. For instance, the superior antennæ are highly distinguished by the presence of a distinct, though small accessory appendage, a feature not observed in any of the other genera belonging to this family. Moreover the structure of the uropoda is rather peculiar, and somewhat reminds of that found in the *Paramphithoidæ*.

12. **Amphithopsis longicaudata**, Boeck.

(Pl. 161).

Amphithopsis longicaudata, Boeck, Crust. amph. bor. & arctica, p. 119.

Body somewhat elongated, though very much inflated, and nearly depressed in its anterior part, with the back broadly vaulted. Urosome much prolonged and attenuated, occupying together with its appendages even $^1/_3$ of the length of the body. Cephalon about the length of the first 2 segments of mesosome combined, and not very deep, rostral projection somewhat prominent, lateral corners narrowly rounded, and not defined posteriorly by any incision or notch. Anterior pairs of coxal plates rather broad, and fully as deep as the body, being densely crowded together; 1st pair somewhat expanded in their outer part, with the distal edge broadly rounded; the 2 succeeding pairs oblong quadrangular in form; 4th pair somewhat broader than the preceding pairs, and forming posteriorly, below the emargination, an obtusely truncated expansion; 5th and 6th pairs comparatively small, with the posterior lobe deeper than the anterior, and narrowly truncated at the tip. Epimeral plates of metasome rather large; those of last pair but very little produced at the lateral corners, and having the posterior edge slightly curved. Eyes of moderate size, rounded triangular in form, with well-defined visual elements and light red pigment. Superior antennæ extremely slender and elongated, even exceeding somewhat the length of the whole body, 1st joint of the peduncle rather thick, and scarcely longer than the 2nd, last joint about half its length, flagellum about 5 times as long as the peduncle, and extremely narrow and brittle, being composed of numerous articulations carrying slender bristles, accessory appendage forming a single linear joint lying inside the flagellum, and equalling in length about the 1st articulation of the latter. Inferior antennæ somewhat less slender than the superior, but of about same length, last joint of the peduncle considerably longer than the penultimate one, both being densely clothed by fascicles of delicate bristles, flagellum rather more than twice the length of the peduncle, and having its proximal part densely setous in a brush-like manner. Anterior gnathopoda with the carpus slightly dilated in the middle, propodos about same length as the latter, and considerably widening distally, palm perfectly transverse, and about half as long as the hind margin, which has several transverse rows of slender setæ. Posterior gnathopoda scarcely longer than the anterior, and of a very similar structure, though comparatively somewhat more slender, with the palm scarcely at all expanded, and the propodos considerably narrower. The 3 posterior pairs of pereiopoda somewhat robust in structure, with the basal joint oval, and having its posterior edge perfectly smooth, dactylus in all pairs rather large, knife-shaped, and having, at a short distance from the unguiform, curved tip, 2 small denticles. Penultimate pair of uropoda reaching considerably beyond the 1st pair; last pair extending about to the tip of the former, and having the outer ramus very small, scarcely attaining $^1/_3$ of the length of the inner. Telson oval triangular in form, with the edges perfectly smooth, and the tip obtusely pointed. Body pellucid, whitish, more or less distinctly mottled with a light reddish pigment, forming generally narrow bands across the segments, and partly extending down the coxal plates; ova in the marsupial pouch bluish green. Length of adult female 7 mm.

Remarks. — The description given by Boeck of this form, as also the figures reproduced, are rather unsatisfactory, and in some points even very misleading. Thus he erroneously describes the body as being compressed, and the superior antennæ as much longer than the inferior. Moreover, the last pair of epimeral plates of metasome are said to be acutely produced at the lateral corners, and the posterior edge of the basal joint of the posterior pereiopoda to be serrated. In spite of these apparent disagreements, it is quite certain, that the form above described is that named by Boeck as above. The great fragility of the animal, and the consequently more or less imperfect state of the specimens captured, may have been the reason why Boeck could not make out its description satisfactorily.

Occurrence. — This peculiar Amphipod is by no means rare. I have met with it in numerous places off the west coast of Norway, and have also found it in the Trondhjemsfjord, and as far north as Bodø, in depths ranging from 50 to 150 fathoms. In nearly every case it occurred on rocky bottom, especially where this consisted of coarse gravels and stones, and as the animal is extremely fragile, it may therefore easily be crushed or injured in hauling up and emptying the dredge. On applying very light dredges, I have however, occasionally succeeded in capturing it quite uninjured, and have thus had an opportunity of observing the animal in the living state. It is very rapid in its movements, but seldom swims about for any length of time, clinging very soon with its sharp dactyli to some gravel or stone, where it remains motionless, with the urosome folded in beneath the body, and its long antennæ spread out to either side. Seen from above, it exhibits in such cases a most strange aspect by its very broad body and the laterally extended coxal plates, looking more like an Isopod than an Amphipod. Out of Norway this form has not yet been recorded.

Gen. 8. **Leptamphopus**, G. O. Sars, n.

Syn.: Amphithopsis, Boeck (part).

Body slender and compressed, with none of the segments produced dorsally, and the urosome of normal appearance. Cephalon rather large and deep, with a very small rostral projection, and the postantennal corners well defined. Coxal plates of moderate size, 4th pair the largest and distinctly emarginated posteriorly in their upper part. Eyes imperfectly developed. Antennæ slender and elongated, the superior ones being much the longer, and having no accessory appendage. Buccal area rather projecting. Anterior lip rounded; posterior lip rather large, and without any inner lobes. Mandibles strong, with the cutting part greatly produced and coarsely dentated, secondary lamella present only on the left mandible, molar expansion large and massive, palp of moderate size. First pair of maxillæ with the masticatory lobe not very large, basal lobe rather broad, and edged with numerous ciliated setæ, palp not at all expanded distally. Second pair of maxillæ with both lobes well developed and densely setous at the tip. Maxillipeds not very large, basal lobes of normal appearance, masticatory lobes scarcely as large as the latter, palp comparatively small. Gnathopoda extremely slender, and rather unequal in length, the posterior ones being much the longer, propodos in both pairs extremely narrow, nearly linear in form, with the palm very short and transverse. Pereiopoda slender and elongated, the 3 posterior pairs successively increasing in length, and having the basal joint laminarly expanded. The 2 anterior pairs of uropoda of normal structure; last pair having the basal part quite short, and the rami rather unequal, the inner one being much the larger, both mucroniform in shape, and edged with small spinules. Telson comparatively broad, and somewhat navicular in shape, the upper face being hollowed, and the lower face keeled longitudinally.

Remarks. — The present new genus is founded upon the form described by Boeck as *Amphithopsis longimana.* It is obvious that this form cannot properly be regarded as congeneric with *Amphithopsis longicaudata* of the same author, and, as it moreover, differs in some points very markedly, from the other known genera, I have felt justified in regarding it as the type of a distinct genus. The generic name here proposed refers to the extremely slender form of the gnathopoda. In the structure of the telson and the last pair of uropoda, the genus strongly resembles the *Paramphithoidæ*, and perhaps both this and the preceding genus, should, in spite of the non-bilobular anterior lip, be more properly referred to that family than to the *Calliopiidæ*. The genus comprises as yet but a single species, to be described below.

13. **Leptamphopus longimanus** (Boeck).

(Pl. 162)

Amphithopsis longimana, Boeck, Crust. amph. bor. & arct. p. 120.

Body slender and elongated, with the back evenly rounded throughout. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection very small, lateral corners short, and transversely truncated at the tip, being defined below by a small notch, postantennal ones forming on each side a triangular lobe partly obtecting the basal joint of the inferior antennæ. Anterior pairs of coxal plates considerably deeper than the body; 1st pair but very slightly widening distally; the 2 succeeding ones oblong quadrangular in form; 4th pair rather expanded in their outer part, and produced posteriorly, below the emargination, to an acute-angled projection; 5th and 6th pairs rather broad, with the posterior lobe deeper than the anterior. Epimeral plates of metasome comparatively large; last pair nearly rectangular, with the posterior edge but slightly curved. Eyes only very faintly traced in alcoholic specimens. Superior antennæ (in female) nearly attaining the length of the whole body, 1st joint of the peduncle about the length of the 2 outer ones combined, flagellum extremely slender and elongated, about 5 times as long as the peduncle. Inferior antennæ much shorter than the superior, last joint of the peduncle exceeding in length the penultimate one, flagellum not quite twice the length of the peduncle. Anterior gnathopoda with the carpus slightly expanded distally, and forming below a short setous lobe, propodos about same length, but much narrower, and scarcely at all widening distally, being clothed inferiorly with numerous fascicles of short bristles, palm nearly tranverse and quite short, dactylus extremely small. Posterior gnathopoda of a similar structure, but much more elongated, having both the carpus and the propodos extremely narrow and produced, and clothed inferiorly with fascicles of small bristles. Pereiopoda very slender and brittle, being edged with slender spinules, basal joint of the 3 posterior pairs oblong oval in form, with the posterior edge perfectly smooth, that of last pair, as usual, much the largest. First pair of uropoda much larger than the 2nd; last pair reaching about to the tip of the latter, and having the outer ramus about half as long as the inner. Telson oval quadrangular in form, tip obtusely truncated, with a very small notch in the middle. Colour in the living state of the animal not yet stated. Length of adult female 10 mm.

Remarks. — As above stated, the present form was erroneously described by Boeck as a species of his genus *Amphithopsis*, to which genus it, in fact, bears only a very remote affinity. It is easily distinguished from any of the other forms belonging to the present family, by the extremely slender and unequal-sized gnathopoda. In the latter respect, it somewhat resembles the form described by the Rev. Mr. Stebbing from the Challenger Expedition as *Atyloides serraticauda*, but is otherwise very different.

Occurrence. — I have only seen a few specimens of this form, which were collected in 3 different localities of the Norwegian coast, viz., in the outer part of the Hardangerfjord, at Sunde and Mosterhavn; at Christiansund; and in the Trondhjemsfjord. In all 3 localities it occurred quite solitary in a very considerable depth, ranging from 150 to 400 fathoms.

Distribution. — Greenland (Hansen).

Fam. 19. Atylidæ.

Body generally not very slender, with the back, as a rule, much curved. Urosome comparatively strongly built, and having the last 2 segments completely fused together. Cephalon rather deep, and more or less produced in front, lateral corners small or obsolete. Coxal plates of moderate size or very small, 5th pair with the anterior lobe deeper than the posterior. Eyes distinct. Antennæ slender, and more or less distinctly modified in the male, the superior ones, as a rule, without any accessory appendage. Oral parts well developed. Mandibles short and compact, with the molar expansion very massive, palp present or wanting. Maxillipeds with the masticatory lobes generally very large, palps comparatively small. Gnathopoda not very strong, subcheliform, and somewhat unequal, the posterior ones being generally more slender than the anterior. Pereiopoda not much elongated, the 3 posterior pairs generally strongly reflexed, and having the dactylus in some of them inverted. Branchial lamellæ large and often of complicated structure, being folded transversely. Penultimate pair of uropoda much smaller than the 1st pair; last pair reaching generally beyond the others, and having the basal part short, and the rami subequal. Telson more or less developed, and deeply cleft.

Remarks. — In the restriction here adopted, this family comprises but a small number of the forms referred by Boeck to his subfamily *Atylinæ*. On the other hand, I have felt justified in including in the same family the genera upon which Boeck founded his subfamily *Dexamininæ*. True, in the latter the mandibular palp is wanting, but I cannot regard this characteristic in itself as being sufficient to warrant such a separation, since there are other families that include forms both with and without mandibular palps, for instance the family *Stenothoidæ*. In other respects, there is evidently a very close relationship between the *Dexamininæ* and the forms of the *Atylinæ* included in the present family, both as to outward appearance and to most of the structural details. As a most curious feature, common at least to all the Norwegian forms of the family, may be named the complete fusion of the 2 last segments of the urosome. Also, the peculiar inversion of the dactylus, which occurs in all the forms on some of the posterior pairs of pereiopoda, is very characteristic, as also the deeply-fissured telson, and the generally very complicated structure of the branchial lamellæ. Whether the genera *Atyloides* and *Atylopsis* of Stebbing should be referred to this or the preceding family, seems to me to be still somewhat doubtful. The family comprises 4 genera represented in the fauna of Norway, one of which is now for the first time established.

Gen. 1. **Paratylus,** G. O. Sars, n.

Syn.: Atylus autorum (part).

Body much compressed, and keeled dorsally, with the urosome always produced at the end to a compressed dorsal projection, in front of which there is a small notch. Cephalon rather deep, with the rostral projection more or less produced, and the anterior edges irregularly waved. Anterior pairs of coxal plates of moderate size, and generally smaller in male than in female; 5th pair with the anterior lobe rather deep. Superior antennæ shorter than the inferior, and without any accessory appendage; both pairs in male considerably prolonged. Mandibles with distinct, though rather small and slender palps. Maxillæ of the usual structure Maxillipeds with the masticatory lobes oblong oval in form, reaching beyond the penultimate joint of the palp, and armed on the inner edge with strong flattened spines, palp comparatively small and narrow. Anterior gnathopoda somewhat stronger than the posterior, with the propodos ovate in form, and densely clothed with bristles on the upper edge. The 2 anterior pairs of pereiopoda rather unequal in size, the 2nd pair being much smaller than the 1st; antepenultimate pair generally strongly recurved and shorter than the 2 last pairs, which are nearly of equal length, with the dactylus generally inverted. Branchial lamellæ in most of the species folded transversely. Last pair of uropoda with the rami rather narrow, and edged with small spines. Telson not very large, with the lateral edges unarmed, cleft very narrow, terminal lobes subtruncated at the tip.

Remarks. — The present new genus includes most of the species formerly referred to the genus *Atylus* of Leach. As, however, the latter genus was founded upon the arctic form, *A. carinatus* Fabr., which in several points distinguishes itself very markedly from the other species, I have felt justified in restricting the Leachian genus to that form, and to comprise the others within a nearly-allied, new genus, the one here proposed. It may be chiefly characterised by the comparatively slender antennæ, the superior of which do not exhibit any trace of an accessory appendage, the rather small and slender palps of the mandibles and maxillipeds, the likewise rather feeble gnathopoda, and the form of the telson. Besides the 5 Norwegian species described below, several exotic forms have been recorded by different authors as belonging to the genus *Atylus*, most of which may be more properly referred to the present genus.

1. **Paratylus Swammerdami** (M-Edw.).

(Pl. 163).

Amphithoë Swammerdami, M-Edwards, Ann. Sc. Nat. XX, p. 378.

Syn.: Amphithoë compressa, Lilljeborg.
» Paramphithoë compressa, Bruzel.
» Dexamine Gordoniana, Sp. Bate.
» Dexamine Loughrini, Sp. Bate.
» Atylus Swammerdami, Sp. Bate.

Body comparatively short and stout, and highly compressed, with none of the segments of mesosome or metasome elevated dorsally. First segment of urosome having, as in the other species, at the end dorsally a triangular projection, in front of which there is a deep notch defined above by another but much smaller projection. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection rather short, anterior edges of cephalon minutely bilobate, both lobes rounded. Anterior pairs of coxal plates in female rather large, fully as deep as the body, in male much smaller; 1st pair scarcely tapering distally and, like the 2 succeeding ones, oblong quadrangular in form, though rather smaller; 4th pair slightly emarginated posteriorly in their upper part, and forming below the emargination a very slight expansion truncated at the tip; the 3 posterior pairs much smaller than the anterior, anterior lobe of the antepenultimate pair rather deep, and narrowly rounded at the tip. Last pair of epimeral plates of metasome produced at the lateral corners to an acute point, posterior edge nearly straight. Eyes oblong reniform, considerably larger in male than in female, pigment dark brown, with a whitish coating. Superior antennæ in female considerably exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle somewhat longer than the 2nd, flagellum not quite twice as long as the peduncle, and composed of about 24 articulations carrying very small bristles. Inferior antennæ but little longer than the superior, last joint of the peduncle nearly twice as long as the penultimate one, flagellum about the length of those joints combined. Both pairs of antennæ in male much more elongated than in female, and having the opposite edges of the peduncles densely clothed with fascicles of delicate sensory bristles. Anterior gnathopoda comparatively rather strongly built, propodos regularly ovate in form, and about the length of the 3 preceding joints combined, its upper face densely clothed with transverse rows of slender bristles, palm very oblique, and imperfectly defined posteriorly. Posterior gnathopoda somewhat more slender than the anterior, with the propodos narrower and scarcely longer than the 2 preceding joints combined, palm shorter than the hind margin, and defined below by on obtuse angle. Pereiopoda rather short; the 2 anterior pairs of the usual structure; the 3 posterior pairs having the propodal joint much longer than the carpal one, and the dactylus recurved, basal joint of the antepenultimate pair with the anterior edge strongly curved, and densely clothed with long cilia, infero-posteal corner produced to a triangularly pointed projection, that of last pair broadly oval in form, and having likewise the infero-posteal corner produced to a triangular deflexed lappet. Branchial lamellæ of the 3 anterior pairs of pereiopoda distinctly lobular. Last pair of uropoda with the rami more than twice as long as the basal part, each with a well-marked apical spine and a few simple bristles. Telson not nearly twice as long as it is broad at the base, cleft very narrow, and extending nearly to the base, terminal lobes truncated at the tip, and each carrying a single small apical spinule. Body semipellucid, whitish, with small scattered patches of a chestnut-brown pigment. Length of adult female 8 mm., of male somewhat less.

Remarks. — The present form was first described in the year 1830 by M-Edwards as *Amphithoë Swammerdami*, and was subsequently referred by Sp. Bate to the genus *Atylus* of Leach. According to the latter author, the forms, he had previously described as *Dexamine Gordoniana* and *D. Loughrini*, are not specifically different from that species, and the same is also undoubtedly the case with *Amphithoë compressa* of Lilljeborg. From most of the other species, the present one may be easily distinguished by its comparatively short and stout body, and the want of any dorsal projections, except those of the 1st segment of urosome.

Occurrence. — I have met with this form rather abundantly in several places, both off the south and west coasts of Norway, as also off the whole Finmark coast as far as Vadso. It it generally found in comparatively shallow water, from 3 to 20 fathoms, and especially where the bottom consists of pure sand. As usual, the males are much more active than the females, and swim about with great rapidity.

Distribution. — British Isles (Sp. Bate), Shetland Isles (Norman), Bohuslän (Bruzel.), Kattegat (Meinert), the Dutch Coast (Hoek), coast of France (Chevreux), Mediterranean at Algeria (Chevreux), and at Naples (the author), Azores (Barrois).

2. **Paratylus falcatus** (Metzger).

(Pl. 164, fig. 1).

Atylus falcatus, Metzger, Wirbellose Meeresthiere der ostfrisischen Küste, II Beitr. p. 9.

Syn.: Atylus uncinatus, G. O. Sars.

Very like the preceding species, as to its outward appearance, though perhaps still stouter in form. Cephalon nearly exactly as in that species. Anterior pairs of coxal plates comparatively smaller, and scarcely as deep as the body; 1st pair considerably tapering distally; 4th pair but little broader than the 2 preceding pairs. Last pair of epimeral plates of metasome produced at the lateral corners to a very small recurved point. Eyes oblong reniform, with a chalky white coating. Superior antennæ (in female) comparatively shorter than in *P. Swammerdami,* scarcely attaining $^1/_3$ of the length of the body, and having the flagellum but little longer than the peduncle, and composed of a smaller number of articulations. Inferior antennæ considerably longer than the superior, with the last joint of the peduncle not nearly twice as long as the penultimate one, flagellum shorter than those joints combined. Anterior gnathopoda somewhat less strongly built than in *P. Swammerdami*, otherwise of a very similar structure. Posterior gnathopoda with the propodos narrowly oblong in form, and having the palm about the length of the hind margin, and very oblique. First pair of pereiopoda extremely strongly built, being transformed into a pair of very powerful graspers, carpal joint very short and cup-shaped, propodal joint somewhat curved, and armed at the base posteriorly with several strong spines, dactylus enormously developed, and of a falciform curve, so as to admit of being folded upon the outer part of the leg. Second pair very small, with the outer part quite rudimentary. The 3 posterior pairs with the propodal joint very short, scarcely more than half as long as the carpal one, dactylus in all very strong and recurved; basal joint of last pair somewhat broader than in the preceding species, with the posterior edge evenly curved and minutely serrated. Uropoda and telson nearly as in that species. Body rather pellucid, with scattered brownish patches. Length of adult female 7 mm.

Remarks. — This form was first recorded by Metzger from the east Frisian Coast as *Atylus falcatus*, and some years afterwards the author, not being at that time aware of Metzger's paper, described the same form from the Norwegian coast under another name, viz., *Atylus uncinatus*. It is very nearly allied to *P. Swammerdami*, but may at once be distinguished by the very peculiar development of the 1st pair of pereiopoda, and the rudimentary nature of the 2nd pair. Moreover the mutual longitudinal relation of the outer joints on the posterior pairs of pereiopoda is rather different.

Occurrence. — I have met with this form in 3 widely distant localities of the Norwegian coast, viz., at Jæderen, south coast of Norway, at Skudesnæs, Karmø, and at Sørvær, west coast of Finmark. In all 3 places it occurred rather sparingly in comparatively shallow water, together with *P. Swammerdami*. It employs its peculiarly modified 1st pair of pereiopoda for getting hold of some fragment of shell, or piece of algæ, beneath which it conceals itself with great dexterity.

Distribution. — East Frisian Coast (Metzger), Dutch coast (Hoek), coast of France (Chevreux).

3. **Paratylus vedlomensis** (Sp. Bate).

(Pl 164, fig. 2).

Dexamine vedlomensis, Sp. Bate & Westwood, Brit. Sess.-eyed Crustacea I, p. 242.

Syn.: Atylus vedlomensis, Boeck.

Body somewhat more slender than in the 2 preceding species, and very distinctly keeled dorsally, the carina being elevated in the last segment of mesosome and those of metasome, to compressed, posteriorly-pointing projections. First segment of urosome produced dorsally in a manner similar to that in the said species. Cephalon with the rostral projection somewhat more prominent, anterior edges forming, below the insertion of the superior antennæ, a small acute lappet, and farther down a rounded lobe. Anterior pairs of coxal plates scarcely as deep as the body; 1st pair rather narrow, and somewhat tapering distally; 3rd pair considerably broader than the 2nd; 4th pair but little larger than the former, and obtusely rounded at the infero-posteal corners. Last pair of epimeral plates of metasome rather narrow, and rounded at the lateral corners, though exhibiting a very small and obtuse projection inferiorly. Eyes comparatively smaller than in the 2 preceding species, and oval in form, pigment dark brown, with a whitish coating. Antennæ very slender, the superior ones (in female) considerably exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle scarcely as long as the 2nd, but much thicker, and produced at the end posteriorly to an obtuse denticle, last joint rather small, flagellum somewhat longer than the peduncle, and composed of about 20 articulations. Inferior antennæ considerably longer than the superior, and having the last joint of the peduncle very slender and elongated, flagellum about the length of the peduncle. Gnathopoda of a structure similar to those in *P. Swammerdami*, though somewhat more slender. The 2 anterior pairs of pereiopoda normal; the 3 posterior pairs having the propodal joint much shorter than the carpal one, and the dactylus in all recurved, basal joint of antepenultimate pair produced at the infero-posteal corner to a very strong, somewhat hook-shaped projection, that of last pair very broad, obcordate in shape, with the infero-posteal corners triangularly produced. Branchial lamellæ simple, not lobular. Uropoda and telson nearly as in the 2 preceding species. Body semipellucid, with a yellowish tinge, and having along the back a series of rounded orange-coloured patches, sides of body irregularly streaked and mottled with a similar pigment, which also occurs on the antennæ and legs; buccal area and uropoda tinged with a dark chestnut-brown pigment; ova in the marsupial pouch bluish green. Length of adult female 8 mm.

Remarks. — This form was first described by Sp. Bate in his well-known work on the British sessile-eyed Crustacea as a species of *Dexamine*. Boeck, however, justly pointed out its difference from that genus, and referred it to the genus *Atylus* of Leach. It is undoubtedly congeneric with the 2 preceding species, from which, however, it is at once distinguished by the well-defined dorsal projections of the metasome and last segment of mesosome.

Occurrence. — The species would seem to be a more southern form, since it has never been met with in the arctic region of Norway. I have collected it not rarely in several places off the south and west coasts of Norway, as also in the Trondhjemsfjord, in moderate depths ranging from 10 to 50 fathoms,

Distribution. — Shetland Isles (Norman), British Isles (Robertson), Kattegat (Meinert), coast of France (Chevreux).

4. **Paratylus Smitti** (Goës).

(Pl. 165, fig. 1).

Paramphithoë Smitti, Goës, Crust. amph. maris Spetsb. p. 8, f. 14.

Syn.: Atylus Smitti, Boeck.

Body highly compressed, and very distinctly keeled dorsally, the carina being elevated in the last segment of mesosome and those of metasome to rather large, triangularly-compressed projections. First segment of urosome, as usual, with 2 successive dorsal projections, the posterior very large and nearly linguiform in shape. Cephalon produced in front to a rather prominent acute rostrum, reaching beyond the middle of the basal joint of the superior antennæ, anterior edges of cephalon very slightly bulging out in the middle, and forming below a narrowly-rounded, deflexed lappet, defined posteriorly by a deep notch. Coxal plates comparatively small, and decreasing somewhat in depth posteriorly; 1st pair very narrow and deeply concaved anteriorly, with the outer part somewhat expanded, and having the anterior corner narrowly produced, distal edge slightly serrated and edged with small bristles; 2nd pair likewise rather narrow, and having the distal edge armed in a similar manner; the 2 succeeding pairs much broader, and scarcely as deep as the corresponding segments, distal edge slightly emarginated in the middle; 5th pair with the anterior lobe terminating in a downward curving point. Last pair of epimeral plates of metasome rather narrow, and forming at the lateral corners a very slight angle. Eyes comparatively small, rounded, pigment carmine. Superior antennæ very slender, nearly equalling half the length of the body, 1st joint of the peduncle much shorter than the 2nd, and not produced at the end posteriorly, last joint extremely small, flagellum about twice the length of the peduncle, and composed of numerous short articulations. Inferior antennæ but little longer than the superior, and having the last 2 joints of the peduncle about equal-sized, flagellum about the length of the peduncle. Gnathopoda very slender, especially the posterior ones, and densely setous on both edges, propodos in both pairs shorter than the carpus and scarcely broader, palm somewhat oblique and much shorter than the hind margin. The 2 anterior pairs af pereiopoda of normal structure; the 3 posterior ones comparatively slender and elongated, with the propodal joint much shorter than the carpal one, and the dactylus scarcely recurved, basal joint of the antepenultimate pair but very slightly produced at the infero-posteal corner, that of last pair rather expanded, with the posterior edge considerably curved and densely setous, outer part of the joint abruptly instricted, with the infero-posteal corner scarcely at all produced. Branchial lamellæ simple. Last pair of uropoda extending considerably beyond the others, rami very elongated, knife-shaped, and densely edged with spines. Telson scarcely longer than it is broad at the base, cleft very narrow and extending nearly to the base, terminal lobes transversely truncated at the tip, and, as usual, each armed with a small apical spinule. Colour in the living state of the animal not yet stated. Length of adult female reaching 23 mm.

Remarks. — This form was first described by Goës as *Paramphithoë Smitti*, and was subsequently referred by Boeck to the genus *Atylus* of Leach. It is, however, evidently congeneric with the 3 above-described species, and in its general appearance even considerably resembles *P. vedlomensis*, from which it yet distinguishes itself pretty well, not only by its very large size, but also by several well-marked structural details, for instance the much greater projection of the rostrum, the small eyes, and the structure of the legs and the last pair of uropoda.

Occurrence. — I have not myself met with this form off the coast of Norway, but it is stated by Boeck to occur off the coast of Finmark, and there is indeed in our Museum collection a single somewhat imperfect specimen collected by the late Prof. Esmark at Kjeldsnæs, Sydvaranger. The figures here given are from arctic specimens collected during the Norwegian North Atlantic Expedition.

Distribution. — Arctic Ocean: Greenland (Torell), Spitsbergen (Goës), the Barents Sea (Hoek), the Kara Sea (Hansen), the Siberian Polar Sea (Stuxberg).

5. **Paratylus nordlandicus** (Boeck).

(Pl. 165, fig. 2).

Atylus nordlandicus, Boeck, Crust. amph. bor. & arct. p. 113.

Body, as usual, much compressed, and very conspicuously carinated dorsally, the carina being elevated in the 2 posterior segments of mesosome and those of metasome to compressed projections increasing in size posteriorly. First segment of urosome having, like the other species, 2 successive dorsal projections, the anterior of which is very small. Cephalon produced in front to a rather large, nearly horizontally projecting rostrum, reaching beyond the middle of the basal joint of the superior antennæ, anterior edges of cephalon nearly as in *P. vedlomensis*, exhibiting above a short acute lappet and below a broadly rounded lobe. Anterior pairs of coxal plates rather deep, the first

2 pairs comparatively narrow, with the distal edge conspicuously serrated and bordered with long ciliated setæ; the 2 succeeding pairs fully as deep as the corresponding segments, and having likewise their distal edge serrated and not at all emarginated; 5th pair with the anterior lobe terminating in a narrowly rounded, deflexed lappet. Last pair of epimeral plates of metasome of about same shape as those in *P. Smitti*, and having the posterior edge slightly crenulated. Eyes very small, rounded, pigment red. Superior antennæ (in female) scarcely exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle a little shorter than the 2nd, flagellum not much longer than the peduncle, and composed of 12 articulations only. Inferior antennæ somewhat longer than the superior, with the last joint of the peduncle but little exceeding in length the penultimate one, flagellum about the length of those joints combined. Anterior gnathopoda with the propodos fully as long as the carpus, and oblong oval in form, having the palm imperfectly defined. Posterior gnathopoda much more slender and elongated, with the propodos shorter than the carpus, and very slightly widening distally. The 2 anterior pairs of pereiopoda normal; the 3 posterior pairs moderately elongated, with the propodal joint somewhat shorter than the carpal one, dactylus on the last pair distinctly recurved; basal joint of antepenultimate pair produced at the infero-posteal corner to a triangular projection, that of last pair very much expanded, fully as broad as it is long, posterior edge strongly curved, infero-posteal corner produced. Branchial lamellæ distinctly lobular. Last pair of uropoda of moderate length, and resembling those in *P. Swammerdami*. Telson much longer than it is broad at the base, cleft extending nearly to the base, and somewhat widening below, terminal lobes obliquely truncated and each carrying the usual apical spinule together with a pair of small hairs. Body dark yellowish gray, with a row of more or less distinct orange-coloured patches along the back. Length of adult female scarcely attaining 8 mm.

Remarks. — This species, established by Boeck, somewhat resembles the 2 preceding species, as to general appearance, being, however, easily distinguishable by the comparatively higher body, the nearly horizontally projecting rostrum, and the very small eyes.

Occurrence. — The species is by no means rare off the Norwegian coast. I have collected it, sometimes rather plentifully, in several places both on the south and west coasts of Norway, as also in the Throndhjemsfjord, in depths ranging from 50 to 100 fathoms. It extends northwards along the Nordland coast as far as Hasvig, west Finmark. Out of Norway it has not yet been recorded.

Gen. 2. **Atylus,** Leach, 1817.

Body, in general appearance, resembling that of the preceding genus, being highly compressed and distinctly keeled dorsally, with some of the segments elevated to posteriorly pointing projections. Urosome with a single dorsal process at the end of its 1st segment. Cephalon more or less produced in front, and having the postantennal corners distinct and defined from the lateral ones by an angular incision. Coxal plates comparatively small. Antennæ not very slender, and subequal in length, the superior ones with a small nodiform accessory appendage. Mandibles with the palp very fully developed. Second pair of maxillæ with the outer lobe much longer than the inner. Maxillipeds comparatively large, masticatory lobes of moderate size, palp rather strong. Gnathopoda comparatively short, but rather strongly built, having the propodos much dilated. Pereiopoda comparatively short; last pair with the basal joint very much expanded, and having the dactylus recurved. Branchial lamellæ simple. Last pair of uropoda reaching scarcely beyond the others, rami subequal and edged with slender bristles. Telson of moderate size, more or less deeply cleft, terminal lobes obtusely pointed.

Remarks. — The present genus, established by Leach as early as in the year 1817, is nearly allied to the preceding one, though differing rather markedly in a few points. Thus the superior antennæ are clearly distinguished by the presence of a distinct, though small accessory appendage, and both pairs are, moreover, far less slender than in that genus, and subequal in length, further, the mandibular palps are very large, and the palps of the maxillipeds much more fully developed than in *Paratylus;* finally, the gnathopoda are comparatively more strongly built, and the telson of a somewhat different shape. Besides the arctic species described in the sequel, the antarctic form, *Atylus huxleyanus,* most probably belongs to this genus.

6. **Atylus carinatus** (Fabr.).

(Pl. 166, fig. 1).

Gammarus carinatus, Fabricius, Entom. Syst. II, 515.

Syn.: Amphithoë carinata, Krøyer.
› Paramphithoë carinata, Goës.

Body rather elongated and highly compressed, with the back distinctly keeled throughout, the carina being in the last 3 segments of mesosome and those of metasome elevated to compressed projections, the 2 anterior of which however, are rather slight. First segment of urosome with a similar dorsal projection at the end, as in the genus *Paratylus*, but without any notch in front of it. Cephalon produced in front to a rather large and compressed rostrum, somewhat expanded distally, and obtusely rounded at the tip, lateral corners rather broad and subtruncated at the tip, being defined from the postantennal ones by a rectangular notch. Anterior pairs of coxal plates not nearly as deep as the body, and oval quadrangular in form; 4th pair somewhat broader than the preceding pairs, but scarcely deeper, and only slightly emarginated posteriorly; 5th pair nearly as deep as the former, and having the anterior lobe produced to an obtuse deflexed point. Last pair of epimeral plates of metasome scarcely produced at the lateral corners, being nearly rectangular, posterior edge smooth. Eyes very small, rounded oval in form, pigment very dark. Superior antennæ not nearly attaining $^1/_3$ of the length of the body, and rather strongly built, peduncle elongated and rather hairy, with the 1st joint about the length of the 2nd, and the last one half as long, flagellum scarcely longer than the peduncle, and composed of about 22 articulations clothed with short bristles, accessory appendage very small, uniarticulate and lying inside the flagellum. Inferior antennæ scarcely as long as the superior, the last 2 joints of the flagellum of nearly equal length and rather densely setous, flagellum shorter than those joints combined. Anterior gnathopoda short and stout, carpus not very elongated, and gradually widening distally, propodos about the length of the 2 preceding joints combined, and rounded oval in form, with the superior edge densely clothed with bristles, palm rather short and imperfectly defined below, dactylus short and stout. Posterior gnathopoda somewhat more elongated than the anterior, but otherwise of a very similar structure. The 2 anterior pairs of pereiopoda somewhat unequal in length, the 2nd pair being considerably shorter than the 1st, meral joint in both pairs rather broad, and produced at the end anteriorly to a conical point. The 3 posterior pairs with the 3 outer joints of nearly equal length, basal joint of antepenultimate and penultimate pairs rather narrow and tapering distally, that of last pair, on the other hand, very much expanded, being even broader than it is long, posterior edge strongly curved, and forming below a broadly rounded lobe defined in front by a small notch, dactylus in all pairs rather strong. Last pair of uropoda with the basal part quite short, rami narrow lanceolate, and having, in addition to the marginal bristles, a few small denticles. Telson oval triangular in form, considerably longer than it is broad at the base, cleft extending nearly to the base, terminal lobes tapering to an obtuse point carrying a small spinule. Colour, according to the figure given by Sp. Bate, whitish with red spots. Length of adult female reaching 30 mm.

Remarks. — This is the form upon which Leach founded his genus *Atylus*. It was first described in the year 1793 by Fabricius as *Gammarus carinatus*, and was subsequently redescribed by Krøyer as a new species of the genus *Amphithoë*, the very same specific name being applied. Though somewhat resembling in its general appearance, certain species of the genus *Paratylus*, for example the *P. nordlandicus*, it is, however, easily distinguished, not only by its large size, but also by the far less slender antennæ, the comparatively more robust structure of the gnathopoda, and the want of the dorsal notch on the 1st segment of urosome.

Occurrence. — The only true evidence of the occurrence of this arctic form off the coast of Norway, is derived from a single, but rather well-preserved specimen, which was extracted by Prof. Collett from the stomach of a *Liparis Montagui* captured at Tromso, Finmark. As the *Lipari* may be regarded as rather stationary fishes, we are fully justified by the above-stated fact in including the form among the fauna of Norway. On the other hand, the correctness of Prof. Lilljeborg's statement about the occurrence of this form as far south as Molde, west coast of Norway, seems to me to be highly questionable, and I am much inclined to believe that he has in this case mistaken *Paratylus nordlandicus* for the present form.

Distribution. — Arctic Ocean: Greenland (Fabr.), Spitsbergen (Goës), Franz Josephs Land (Miers), the Murman coast (Jarzynsky), the Kara Sea (Stuxberg), the Siberian Polar Sea (Stuxberg).

Gen. 3. **Dexamine**, Leach, 1814.

Syn.: Amphithonotus Costa (part).

Body comparatively stout, and not much compressed, with some of the segments elevated to strong dorsal projections. Urosome of much the same structure as in the 2 preceding genera, having the 2 outer segments completely fused together. Cephalon of moderate size, with a small rostral projection, and the postantennal corners quite obsolete. Coxal plates of middle size, and increasing in depth to the 4th pair, which are evenly emarginated posteriorly; 5th pair rather broad, and much larger than the succeeding pairs. Eyes well developed, and placed close to the anterior edges of the cephalon. Antennæ very slender, the superior ones with the peduncle much elongated, and without any accessory appendage, being in female much longer than the inferior; the latter in male greatly prolonged. Anterior lip of the usual rounded form; posterior lip with a slight rudiment of inner lobes. Mandibles very compact, and without any trace of palps. First pair of maxillæ with the basal lobe rather small, unisetose, palp uniarticulate, though rather large; 2nd pair comparatively small, with the lobes short and only setous at the tip. Maxillipeds with the masticatory lobes very large, nearly concealing the comparatively small and slender palps. Gnathopoda not very strong, and somewhat unequal, the posterior ones being more elongated than the anterior, propodos in both pairs considerably dilated in the middle, and distinctly subcheliform. The 2 anterior pairs of pereiopoda quite alike both in size and structure; the 3 posterior ones considerably larger, nearly equal in length, and generally strongly recurved; basal joint of antepenultimate pair the largest, that of last pair sometimes very little expanded, dactylus in all pairs strong and recurved. Last pair of uropoda of moderate size, rami subequal, and narrow lanceolate in form. Telson much elongated and deeply cleft, lateral edges spinous.

Remarks. — This genus was established by Leach as early as in the year 1814, to include a species described by Colonel Montagu from the British Isles. The genus *Amphithonotus* of Costa must be quoted as a synonym, though the name was used by other authors to include species belonging to widely different genera. As above stated, Boeck regarded this genus as the type of a separate subfamily, *Dexamininæ*, chiefly on account of the absolute want of palps on the mandibles. In addition to this feature, the genus distinguishes itself from the 2 preceding ones by the rather different longitudinal relation between the 2 pairs of antennæ, by the palp of the 1st pair of maxillæ being uniarticulate, and by the somewhat different structure of the pereiopoda and of the telson. Boeck records 3 species from the Norwegian coast, 2 of which will be described below. Of his third species, *D. Heibergi*, I have seen no specimens, and cannot, therefore, give any information upon this form. In addition to these, we know of 3 Mediterranean species,viz., *D. spiniventris* Costa, *D. anisopus* Grube and *D. leptonyx* Grube, and to these may still be added 2 species from the southern Ocean, *Dexamine blossevellianus* of Sp. Bate, and *D. Flindersi* of Stebbing.

7. **Dexamine spinosa**, (Mont.).

(Pl. 166, fig. 2, Pl. 167).

Cancer gammarus spinosus, Montagu, Transact. Linn. Soc. XI, p. 3, Pl. 2, fig. 1.
Syn.: Amphithoë marionis, M-Edw.
› Amphithoë tenuicornis, Rathke.
› Amphithonotus marionis, Costa.

Body rather robust, with the anterior part of the back broadly vaulted. Metasome powerfully developed, especially in the male, and having each of the segments produced to a strong, acute, posteriorly-pointing projection. Urosome with a similar dorsal projection at the end of the 1st segment, and having besides, immediately above the insertion of the telson, another much smaller pointed process. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection rather short and blunt at the tip, lateral corners exserted to an acute triangular lappet. First pair of coxal plates somewhat irregular in form, having the anterior edge slightly concaved and forming with the strongly arcuate distal edge a conspicuous angle; 2nd pair oblong quadrangular in form; 3rd pair somewhat obliquely truncated at the tip, and having the infero-posteal corner acutely produced; 4th pair fully as deep as the corresponding segment, and produced posteriorly, below the emargination, to a narrowly rounded lobe; 5th pair transversely oval in form, with the anterior lobe terminating in a short obtuse point curved downwards. Last pair of epimeral plates of metasome produced at the lateral corners to a very strong acuminate projection. Eyes narrow oblong in form, and considerably larger in male than in female, pigment dark brown, with a whitish coating. Superior antennæ considerably exceeding half the length of the body, 1st joint of the peduncle produced at the end posteriorly to an obtuse dentiform projection, 2nd joint nearly twice as long as the 1st and much narrower, last joint very small, flagellum about twice the length of the peduncle, and very slender, being composed of numerous (30—40) articulations, Inferior antennæ in female much shorter than the superior, with the last joint of the peduncle longer than the penultimate one, flagellum exceeding the peduncle in length, those of male much more elongated, being even longer than the superior ones, and having the anterior edge of the penultimate and antepenultimate joint of the peduncle densely clothed with fine sensory hairs, flagellum very slender, filiform. Palps of maxillipeds without any trace of a dactylus[1]. Anterior gnathopoda short and stout, with the basal joint considerably curved, carpus gradually widening distally, and forming below a rounded setiferous lobe, propodos fully as long as the 2 preceding joints combined, and rather expanded on the middle, being nearly triangular in form, palm somewhat oblique, and about the length of the hind margin, from which it is defined by a well-marked, though obtuse angle armed with 2 successive somewhat unequal spines. Posterior gnathopoda considerably more elongated, and having the carpus scarcely at all expanded below, propodos about same length as the latter, and of a structure similar to that of the anterior ones. The 2 anterior pairs of pereiopoda moderately slender and quite alike; antepenultimate pair rather strongly built, basal joint oblong oval in shape, and produced at the infero-lateral corner to a rounded lobe, meral joint nearly as long as the 2 outer ones combined, and somewhat subfusiform in outline; basal joint of penultimate pair somewhat expanded in its proximal part, the posterior edge bulging out abruptly above the middle, that of last pair less broad, though distinctly laminar, propodal joint in all 3 pairs a little shorter than the carpal one. Branchial lamellæ distinctly folded transversely. Last pair of uropoda with the rami about twice the length of the basal part, and lanceolate in form. Telson very large, extending nearly to the tip of the last pair of uropoda, and fully 3 times as long as it is broad, cleft occupying about $^3/_4$ of the length of the telson, terminal lobes obtusely pointed at the tip, and each carrying 3 lateral spines and one apical. Colour somewhat variable, consisting of a mixture of several tints: dark chestnut-brown, pink, light yellow and pure white, arranged somewhat irregularly both on the body and its appendages. Length of adult female 12 mm., of male somewhat less.

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[1] In *D. Flindersi* Stebbing the dactylus is present, though not very large.

Remarks. — The present species was first recorded by Colonel Montagu as *Cancer gammarus spinosus,* and was the form upon which Leach founded his genus *Dexamine.* The *Amphithoë marionis* of M-Edwards is undoubtedly identical with this form, and this is also the case with *Amphithoë tenuicornis* of Rathke. It may be best recognized from the other species by the peculiar dentiform projection of the basal joint of the superior antennæ, and by the form of the basal joint of the last pair of pereiopoda.

Occurrence. — The species is very frequently found along the whole south and west coasts of Norway, in moderate depths ranging from 6 to 30 fathoms, among algæ. It extends northwards to the Lofoten Isles, and according to Boeck, a single specimen was found by Dr. Danielsen even as far as Vadsø, east Finmark.

Distribution. — British Isles (Sp. Bate), Shetland Isles (Norman), Bohuslän (Bruzelius), Kattegat (Meinert), coast of France (Chevreux), Adriatic

(Heller), Mediterranean at Naples (Costa), Cherchal (Chevreux) and Goletta (the author), Azores (Barrois).

8 **Dexamine Thea**, Boeck.

(Pl. 168, fig. 1).

Dexamine Thea, Boeck, Crust. amph. bor. & arct. p. 107.

Syn.: Dexamine tenuicornis, Sp. Bate (not Rathke).

Body of still shorter and stouter form than in the type species, with boldly curved back, and the segments of metasome and urosome produced in a manner similar to those in that species. Cephalon with a very short rostral projection, lateral corners exserted to a very small, somewhat deflexed, acute lappet. Coxal plates nearly as in *D. spinosa*, though perhaps somewhat deeper, the 4th pair considerably exceeding in depth the corresponding segment. Last pair of epimeral plates of metasome produced at the lateral corners to an acuminate projection, somewhat shorter than in the said species. Eyes comparatively smaller and oval in form, placed close to the anterior edges of the cephalon. Superior antennæ exceeding half the length of the body, 1st joint of the peduncle without any dentiform projection at the end, and considerably shorter than the 2nd, last joint about $^1/_3$ as long as the latter, flagellum not quite twice the length of the peduncle, and composed of 16 articulations only. Inferior antennæ (in female) much shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum but little longer than the peduncle. Gnathopoda resembling in structure those in the preceding species, though less richly setous, and having the basal joint comparatively shorter. The 2 anterior pairs of pereiopoda likewise of much the same appearance as in that species. The 3 posterior pairs having the outer 2 joints about of equal length, and the dactylus very strong and recurved; basal joint of antepenultimate pair somewhat less expanded than in *D. spinosa*, with the infero-posteal corner angular; that of penultimate pair very broad in proportion to its length, nearly cordiform, with the posterior edge bulging out considerably in the middle, and finely serrated; that of last pair not at all expanded, and linear in form. Branchial lamellæ simple. Last pair of uropoda with the rami twice the length of the basal part, and rather narrow, each terminating in a sharp point. Telson scarcely extending to the tip of the latter, and not quite 3 times as long as it is broad, cleft extending nearly to the base, terminal lobes each carrying one apical and 3 lateral spines, and in addition 2 subdorsal ones. Body semipellucid, with a yellowish tinge, and more or less distinctly mottled with brown and pink, uropoda generally very dark coloured. Length of adult female scarcely attaining 4 mm.

Remarks. — This species, established by Boeck, is easily distinguishable from the preceding one by its small size and comparatively stout form of body, as also by the rather different shape of the basal joints of the 3 posterior pairs of pereiopoda. The form described by Sp. Bate as *D. tenuicornis* is most probably identical with the present species.

Occurrence. — I have met with this form rather frequently in numerous places on the Norwegian coast, from the Christianiafjord to Vadso. It generally occurs in comparatively shallow water, among algæ.

Distribution. — Shetland Isles (Norman), British Isles (Robertson), Kattegat (Meinert), coast of France (Chevreux).

Gen. 4. **Tritæta,** Boeck, 1876.

Syn.: Atylus, Sp. Bate (part).
» Lampra, Boeck.

Body scarcely compressed, and having the segments of metasome not produced dorsally. Cephalon comparatively small and truncated in front, with the rostrum nearly obsolete. Coxal plates very small, and partly of irregular angular form. Eyes well developed and placed as in *Dexamine*. Antennæ very slender and subequal in length, the superior ones with greatly elongated peduncle, and without any accessory appendage. Oral parts on the whole resembling those in the genus *Dexamine*. Gnathopoda likewise of a very similar structure. Pereiopoda very strongly built and subequal in length, with the meral joint in all very much elongated, and the 2 outer ones modified so as to make them admirably adapted for grasping, basal joint of the 3 posterior ones but little expanded. Branchial lamellæ simple. Uropoda and telson about as in *Dexamine*.

Remarks. — This genus was first established by Boeck in the year 1870, but as the name he proposed, *Lampra*, was already appropriated in Zoology, he changed it subsequently to *Tritæta*. It is nearly allied to *Dexamine*, yet differing rather markedly in the small size of the coxal plates, the equal-sized antennæ, and the peculiar structure of the pereiopoda. Besides the form described below, 2 exotic species have been recorded from the southern hemisphere by the Rev. Mr. Stebbing, viz., *T. antarctica* and *T. kerguelenia*.

9. **Tritæta gibbosa** (Sp. Bate).

(Pl. 168, fig. 2).

Atylus gibbosus, Sp. Bate, Cat. Amph. Brit. Mus. p. 137, Pl. XXVI, fig. 3.

Syn.: Dexamine brevitarsis, Grube.
› Lampra gibbosa, Boeck.

Body of female much inflated in its anterior part, nearly depressed, and having the back broadly vaulted; that of male somewhat more compressed. First segment of urosome with a rather large gibbous projection at the end dorsally. Cephalon not nearly attaining the length of the first 2 segments of mesosome combined, anterior corners rounded, with a very slight angular projection in front. The 2 anterior pairs of coxal plates oval quadrangular in form, with the anterior corner angularly produced; the 2 succeeding ones much broader and expanded distally to 2 angular lappets; 5th pair not very large, with the anterior lobe much deeper than the posterior, both being obtusely rounded at the tip. Last pair of epimeral plates of metasome produced at the lateral corners to a comparatively short acute point. Eyes rather large, and rounded oval in form, somewhat widening below, pigment reddish brown, with a whitish coating Superior antennæ considerably exceeding half the length of the body, 1st joint of the peduncle much shorter than the 2nd; flagellum twice the length of the peduncle, and composed of about 18 articulations carrying slender bristles. Inferior antennæ in female very little shorter than the superior, last joint of the peduncle not attaining the length of the penultimate one, flagellum nearly twice the length of the peduncle; those in male, as usual, much more elongated and having the penultimate and antepenultimate joints of the peduncle densely clothed with sensory hairs, flagellum very slender, filiform. Anterior gnathopoda with the basal joint fully as long as the remaining part of the leg, carpus widening distally, and forming below a short setiferous lobe, propodos about the length of the 2 preceding joints combined, and rather expanded, rounded oval in form, with 3 transverse rows of bristles on the upper edge and another running across the propodos inside, at some distance from the palm, the latter about the length of the hind margin, and defined below by a very slight angle. Posterior gnathopoda somewhat more elongated than the anterior, with the carpus narrower and scarcely expanded below, propodos not exceeding the latter in length, and oval triangular in form, with the palm more distinctly defined. The 2 anterior pairs of pereiopoda very strongly built, and of a peculiar rigid appearance, meral joint much prolonged, exceeding in length the 2 outer joints combined, carpal joint gradually widening distally, and forming posteriorly a rounded expansion armed with 5 strong spines, propodal joint somewhat longer than the carpal one, and not produced posteriorly to any thumb-like projection, dactylus strong and curved, being adapted to impinge against the spines of the carpal joint. The 3 posterior pairs successively somewhat descreasing in length, and having the outer part built in exactly the same manner as in the 2 anterior pairs, basal joint of antepenultimate pair the largest, and oblong oval in form, that of penultimate pair exhibiting at the base posteriorly an angular projection, that of last pair rather narrow, nearly linear in form. Last pair of uropoda extending somewhat beyond the others, rami scarcely twice the length of the basal part, and narrow lanceolate in shape. Telson rather large and oblong in form, a little more than twice as long as it is broad, cleft very narrow and extending nearly to the base, terminal lobes obtusely pointed, with one apical and 3 marginal spines, and in addition 3 subdorsal ones. Colour more or less dark brownish, with a series of pure white patches on each side, caused by some opaque matter lying inside the integuments; ova in the marsupial pouch very dark-coloured. Length of adult female scarcely attaining 6 mm.

Remarks. — This form was first recorded by Sp. Bate in the year 1862 as *Atylus gibbosus* and was subsequently described under the same name in his work on the British sessile-eyed Crustacea. Boeck, however, justly pointed out its material difference from the species of that genus, and stated that this form, in the structure of the oral parts, is in fact much more nearly related to the genus *Dexamine*, though in other respects exhibiting sufficient difference to be regarded as the type of a separate genus. From the 2 antarctic forms described by the Rev. Mr. Stebbing, the northern species is at once distinguished by the rather different shape of the propodal joint of the pereiopoda, which in the 2 former species is produced posteriorly to a thumb-like projection, against which the dactylus is allowed to impinge, whereas in *T. gibbosa* this joint is quite simple. The form recorded by Grube as *Dexamine brevitarsis*, I regard as identical with the present species.

Occurrence. — This peculiar Amphipod would seem to be rather rare off the coast of Norway. I have only met with it rather sparingly in 2 places on the west coast of Norway, viz., Skudesnæs and Korshavn, in moderate depths ranging from 10 to 30 fathoms. Boeck found it likewise only in a few specimens at Haugesund. It is by no means very active in its movements, and, when swimming about, carries the 2 anterior pairs of pereiopoda spread out in a peculiar manner to each side.

Distribution. — Shetland Isles (Norman), British Isles (Robertson), coast of France (Chevreux), Adriatic (Grube), Mediterranean at Messina (the author), Azores (Barrois).

Fam. 20. Gammaridæ.

Body more or less slender, with the segments of urosome well defined. Coxal plates of moderate size, or very small. Antennæ generally rather slender, and, as a rule, but little different in the two sexes, the superior ones provided with an accessory appendage often greatly developed. Oral parts normal, except in the genus *Lilljeborgia.* Gnathopoda generally rather powerful and subcheliform, being, as a rule, much more strongly built in male than in female. Pereiopoda more or less slender, the 3 posterior pairs generally increasing in length, and having the basal joint laminar. Last pair of uropoda, as a rule, projecting beyond the others, and having the rami more or less foliaceous. Telson generally small, lamellar, and more or less deeply cleft.

Remarks. — The present family comprises a great number of Amphipoda, which on the whole may be said to exhibit most prominently the typical features of the order. Yet there are some forms, which differ more or less from the type, as revealed in the genus *Gammarus*, and which exhibit, as it were, transitions to other families. Thus the genus *Melphidippa* would seem to approach the *Atylidæ*, whereas the genus *Lilljeborgia* shows some resemblance, especially in the structure of the oral parts, to the *Leucothoidæ*, with which family it was in fact associated by Boeck. Perhaps the 2 above named aberrant genera should more properly be wholly removed from the present family, and be regarded as types of 2 separate families. In such case indeed, the family *Gammaridæ* should have been much more precisely defined. I feel, however, some hesitation in increasing the number of families, especially where such families would be founded only upon isolated genera, and I therefore prefer provisionally to include the said genera in the family *Gammaridæ*, placing the one at the head, the other at the end. The family comprises 12 Norwegian genera, two of which are now for the first time established.

Gen. 1. **Melphidippa,** Boeck, 1870.

Syn.: Gammarus, Goës (part.)

Body very slender and elongated, with the segments of metasome and urosome produced dorsally and having their posterior edge dentated. Cephalon comparatively small, without any distinct rostrum, lateral corners well defined, lobular. Coxal plates very small, the 4 anterior pairs being scarcely deeper than the posterior ones; 4th pair not emarginated posteriorly; 5th pair with the anterior lobe much deeper than the posterior. Eyes distinct, though having the visual elements imperfectly developed. Superior antennæ very slender, with the peduncle more or less elongated, and the flagellum extremely narrow, accessory appendage well developed. Inferior antennæ but little shorter than the superior, and comparatively more strongly built, peduncle elongated and densely setous. Antennæ in male scarcely differing from those in female except by the peduncles being densely clothed inside with delicate cilia. Anterior lip of the usual rounded form; posterior lip with the inner lobes well defined. Mandibles strong, with the palp rather slender, and having the last joint well developed. First pair of maxillæ with the basal lobe comparatively broad, and edged with several ciliated setæ. Second pair of maxillæ having the lobes comparatively short and rounded at the tip, the outer one exceeding the inner in length. Maxillipeds with the masticatory lobes a little longer than the basal ones, and edged interiorly with a restricted number of strong spines, at the tip with curved setæ, palp much elongated and densely setous, last joint large and elliptical in form, dactylus elongated, spiniform. Gnathopoda comparatively feeble in structure, and exactly alike in the two sexes, carpus large and more or less laminarly expanded, propodos comparatively small and imperfectly subcheliform; the posterior ones generally more slender than the anterior. The first 2 pairs of pereiopoda very slender, and edged with long bristles, dactylus elongate and setous on both edges. The 3 posterior pairs of pereiopoda much elongated, and nearly of equal size, basal joint rather narrow, dactylus in the 2 posterior pairs recurved. Branchial lamellæ simple; incubatory lamellæ narrow. The 2 anterior pairs of uropoda with the rami narrow linear and densely spinous, the outer one being much shorter than the inner; last pair very large, extending considerably beyond the others, basal part long and narrow, rami subequal and linear in form, being edged with spines. Telson small, oblong triangular, more or less deeply incised.

Remarks. — The present genus, established by Boeck, differs considerably from the typical Gammaridæ in the structure of the gnathopoda, which are comparatively feeble, and exactly alike in the two sexes. It is moreover distinguished by the small coxal plates, the slender form of the antennæ and pereiopoda, and by the great development of the last pair of uropoda. In the recurved dactyli of the 2 posterior pairs of pereiopoda, as also in a few other points, it somewhat resembles the *Atylidæ.* The genus is not represented beyond the northern Ocean, and comprises 3 Norwegian species, to be described below, one of which is now for the first time established.

1. **Melphidippa spinosa** (Goës).

(Pl. 169).

Gammarus spinosus, Goës, Crust. Amphip. maris Spetsbergia, p. 14, fig. 30.

Body extremely slender, with the anterior division evenly rounded above. Segments of metasome each produced at the end dorsally to 3 acute posteriorly-pointing spines, having between them small denticles; the 2 anterior ones of urosome each with a single spiniform dorsal projection. Cephalon scarcely as long as the first 2 segments of mesosome combined, lateral corners obtusely truncated at the tip. First pair of coxal plates slightly expanded distally, with the anterior corner triangularly produced, terminal edge, as in the succeeding pairs, minutely crenulated and fringed with short setæ; 5th pair with the anterior lobe deeper than the preceding pair. Epimeral plates of metasome having their posterior edge coarsely and somewhat irregularly dentated; those of last segment produced at the lateral corners to a somewhat more projecting tooth. Eyes oval in form, somewhat narrowed above, pigment red, with a whitish coating. Superior antennæ nearly equalling the length of the body (without the last pair of uropoda), 2nd joint of the peduncle much longer than the 1st, and having in its outer part several fascicles of slender diverging spines, last joint very small, scarcely attaining $^1/_4$ of the length of the 2nd, flagellum nearly 3 times as long as the peduncle, and composed of about 24 articulations, accessory appendage not very large, and only composed of 2 articulations. Inferior antennæ somewhat shorter than the superior, last joint of the peduncle not attaining the length of the penultimate one, flagellum about half the length of the peduncle. Anterior gnathopoda with the carpus rather large, forming inferiorly a broad laminar expansion densely setous at the edge, its outer part gradually tapering, propodos much shorter than the carpus and greatly constricted at the base being subfusiform in outline, palm not defined, dactylus slender and curved. Posterior gnathopoda much more slender than the anterior, and not having the carpus at all expanded, propodos very narrow and about the length of the carpus, with the palm very short and the dactylus extremely small. The 2 anterior pairs of pereiopoda nearly twice as long as the gnathopoda and very slender, carpal joint longer than the meral one, dactylus rather elongated. The 3 posterior pairs with the carpal and meral joints subequal in length, propodal joint much shorter, dactylus of moderate length; basal joint of antepenultimate pair having the infero-posteal corner produced to a triangularly-pointed lobe. Last pair of uropoda about twice the length of the urosome, inner ramus a little longer than the outer, and about the length of the basal part. Telson nearly twice as long as it is broad, and having on each side a series of small denticles, and moreover dorsally, somewhat beyond the middle, a pair of strongly-developed auditory setæ, outer part gradually tapering, cleft extending about to the middle, terminal lobes bidentate at the tip, and carrying each a long and slender spine. Body whitish, more or less variegated with a reddish brown pigment. Length of adult female 9 mm.

Remarks. — This species was first described by Goës as *Gammarus spinosus,* and was subsequently considered by Boeck as the type of his genus *Melphidippa.* It is easily distinguished from the other 2 species by the character of the spinous armature of the metasome, and by the short 3rd joint of the superior antennæ.

Occurrence. — I have met with this form occasionally off the coast of Finmark in depths ranging from 20 to 50 fathoms, and not infrequently also at Bejan, in the outer part of the Trondhjemsfjord. According to Boeck, it has also been found at Brettesnæs (Lofoten islands) and in the Hardangerfjord.

Distribution. — Spitsbergen (Goës), the Kara Sea (Hansen), British Isles (Robertson).

2. **Melphidippa macrura,** G. O. Sars, n. sp.

(Pl. 170, fig. 1.)

Very like the preceding species as to the external appearance, but having the armature of the metasome somewhat different, each segment being produced dorsally to a single spiniform projection, and having the posterior edge, at either side of the latter, finely denticulated; dorsal spines of the 2 anterior segments of urosome very much elongated and somewhat curved. Cephalon small, with the lateral corners narrowly rounded at the tip. Coxal plates nearly as in the preceding species. Epimeral plates of metasome, however, having the posterior edge perfectly smooth, those of last pair produced at the lateral corners to a dentiform projection. Eyes about as in *M. spinosa.* Superior antennæ scarcely attaining the length of the body; 2nd joint of the peduncle nearly twice the length of the 1st; 3rd joint much more elongated than in *M. spinosa,* equalling $^2/_3$ of the length of the 2nd; flagellum but little longer than the peduncle, and composed of about 15 articulations, accessory appendage nearly as long as the last peduncular joint and 4-articulate. Inferior antennæ but little shorter than the superior, last joint of the peduncle exceeding in length the penultimate one, flagellum scarcely as long as the former joint. Anterior gnathopoda nearly as in *M. spinosa,* though with the carpal expansion somewhat smaller. Posterior gnathopoda rather unlike those in the said species, and but little different in their structure from the anterior ones, the carpus being expanded below in a similar manner, and the propodos being subfusiform in outline, with the dactylus rather elongated The 2 anterior pairs of pereiopoda having the carpal joint about the length of the propodal one, and scarcely longer than the meral joint. The 3 posterior pairs nearly as in *M. spinosa,* except that the basal joint of the antipenultimate pair is not produced at the infero-posteal corner. Last pair of uropoda excessively elongated, being nearly 3 times as long as the urosome, otherwise of a structure similar to that in the preceding species. Telson somewhat less produced and having 2 pairs of auditory setæ dorsally, and only a single lateral denticle on each side close to the base; cleft extending beyond the middle, and somewhat wider than in *M. spinosa,* terminal lobes unequally bidentate, with the apical spine much shorter than in that species. Colour in the living state of the animal not yet stated. Length of adult female 8 mm.

Remarks. — In its external appearance this new species is so very much like the preceding one as easily to be confounded with it. On a closer examination it is however readily distinguishable by the different armature of the metasome, by the much fuller development of the last peduncular joint of the superior antennæ and of their accessory appendage, and finally, by the extremely elongated and slender last pair of uropoda, which, however, as in the other species, are very brittle, and therefore easily broken off.

Occurrence. — A few specimens of this form were long ago collected by the author off the west coast of Norway (the exact locality not stated), but were at that time confounded with *M. spinosa.*

3. **Melphidippa borealis**, Boeck.

(Pl. 170, fig. 2).

Melphidippa borealis, Boeck, Crust. amphip. bor. & arctica, p. 139.

Body of the usual slender form, but having the segments of metasome only very slightly produced dorsally, posterior edge of the last 2 segments distinctly dentated, that of the 2 anterior segments of urosome likewise dentated, but scarcely forming any distinct spiniform projection. Cephalon having the lateral corners broadly rounded. Coxal plates of the usual appearance. Epimeral plates of metasome smooth, those of last segment scarcely produced at the lateral corners. Eyes comparatively small, rounded, with only a few slightly-developed visual elements, pigment red, with a whitish coating. Superior antennæ not nearly attaining the length of the body, 2nd joint of the peduncle longer than the 1st, 3rd joint about half the length of the former, flagellum twice the length of the peduncle, and composed of about 19 articulations, accessory appendage rather fully developed, considerably exceeding in length the last peduncular joint, and composed of 5 articulations. Inferior antennæ scarcely shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum half the length of the peduncle, and 4-articulate. Anterior gnathopoda about as in the 2 preceding species. Posterior gnathopoda with the carpus but little expanded, propodos rather large, fully as long as the carpus, and oblong oval in form with the palm very short, and the dactylus small. The 2 anterior pairs of pereiopoda having the carpal joint longer than the propodal one, and about equalling in length the meral joint. The 3 posterior pairs nearly as in the 2 preceding species. Last pair of uropoda about twice the length of the urosome, and of the usual structure. Telson very narrow, nearly 3 times as long as it is broad at the base, and gradually tapering distally, lateral edges smooth, cleft extending beyond the middle, terminal lobes unequally bidentate, and each carrying a slender, laterally-pointing spine. Body whitish, banded transversely with broad chestnut-brown patches; ova in the marsupial pouch dark bluish. Length of adult female 7 mm.

Remarks. — The present species, established by Boeck, is easily distinguishable from the 2 preceding ones by the far less strong armature of the body, the rather fully-developed accessory appendage of the superior antennæ, and by the structure of the posterior gnathopoda.

Occurrence. — Though nowhere in any abundance, this species is met with along the whole coast of Norway, from the Christianiafjord to Vadso, and is generally found in depths varying from 30 to 100 fathoms. It is extremely brittle, and it is not easy to get a specimen with all its appendages uninjured. — Out of Norway, it has not yet been recorded.

Gen. 2. **Melphidippella,** G. O. Sars, n.

Syn: Melphidippa, Boeck (part.)

Body of a form similar to that in the preceding genus, having some of the posterior segments spinous. Cephalon comparatively deep and much swollen, with the lateral corners terminating in a sharp point. Coxal plates very small. Eyes extremely large and prominent, with well-developed visual elements. Antennæ very slender, the superior ones (in female) longer than the inferior, and having the accessory appendage quite rudimentary; those in male with the opposite edges of the peduncles densely ciliated, the inferior ones being much more fully developed than in female. Oral parts of a similar structure to those in the preceding genus, except that the terminal joint of the mandibular palps is very small, and the palps of the maxillipeds of inferior size. Both pairs of gnathopoda slender and feeble in structure, with the carpus but little expanded. The 2 anterior pairs of pereiopoda extremely slender, nearly setiform, with the dactylus very small; the 3 posterior pairs about as in *Melphidippa.* Last pair of uropoda rather elongated, with the basal part somewhat laminar, and the rami subequal. Telson triangular, deeply cleft.

Remarks. — The present new genus is founded upon the form at first announced by Mr. Norman as *Atylus macer*, and subsequently described by Boeck under another name, viz., *Melphidippa longipes.* Though evidently nearly related to the species of the preceding genus, this form has been found, on a closer examination, to differ in some points rather markedly, so as more properly to be regarded as the type of a separate genus. For instance the accessory appendage of the superior antennæ is so very small as nearly to be obsolete, and the eyes, which in the species of the preceding genus are rather poorly developed, distinguish themselves both by their extraordinary size, and by the very full development of the visual elements. Moreover there are to be found some differences both in the structure of the oral parts, and in that of the legs. The genus comprises, as yet, but a single species, to be described below.

4. **Melphidippella macera** (Norman).

(Pl. 171.)

Atylus macer, Norman, Last Report on Dredging among the Shetland Isles; Report of the Brit. Assoc. for the Advancement of Science 1868, p. 280.

Syn: Melphidippa longipes, Boeck.

Body rather slender, but having the anterior division, especially in female, somewhat tumid, with broadly-vaulted back. Segments of metasome and the 2 anterior ones of urosome each produced dorsally to a spiniform projection, and with the adjacent edge minutely dentated. Cephalon comparatively short, but very broad and deep, with a small rostral projection, lateral lobes much swollen, and terminating in an acute deflexed point. Coxal plates extremely small; 1st pair subquadrangular, with the anterior corner slightly produced; 2nd pair obliquely truncated at the tip; 5th pair about as deep as the preceding pair. Last pair of epimeral plates of metasome acutely produced at the lateral corners, and having the posterior edge minutely serrated. Eyes very large and convex, nearly semiglobose, occupying the greater part of the lateral lobes of the head, visual elements very numerous and densely crowded, pigment red. Superior antennæ about the length of the body, exclusive of the urosome, 1st joint of the peduncle rather thick, and about the length of the other 2 combined, 3rd joint very small, flagellum more than 4 times as long as the peduncle, and extremely slender, being composed of about 22 articulations, accessory appendage forming only a minute nodule carrying a number of small bristles. Inferior antennæ in female shorter than the superior, penultimate joint of the peduncle longer than the last one, flagellum shorter than the peduncle, and composed of about 7 articulations. Same antennæ in male much more elongated, and scarcely shorter than the superior ones, penultimate joint of the peduncle somewhat laminar, flagellum fully as long as the peduncle, and composed of about 12 articulations. Anterior gnathopoda with the carpus somewhat compressed, and densely setous on the inferior edge, propodos much shorter than the carpus, and oblong subfusiform in outline, dactylus slender. Posterior gnathopoda somewhat more elongated than the anterior, carpus rather narrow, and having about 5 fascicles of slender setæ on the inferior edge, propodos about the length of the carpus, and sublinear in form, with the palm very short, and the dactylus small. The 2 anterior pairs of pereiopoda with the meral, carpal and propodal joints nearly of equal length, and edged with scattered fascicles of slender bristles, dactylus extremely small. The 3 posterior pairs of pereiopoda much coarser than the 2 anterior ones, though rather slender and elongated, and are generally strongly reflexed. Last pair of uropoda about the length of the urosome and the last segment of metasome combined, basal part rather broad and laminar, rami a little longer than the latter, and subequal, both edged with slender spines. Telson oblong triangular in form, with a number of small hair-like spines on each side, cleft extending far beyond the middle, terminal lobes unequally bidentate at the tip, and each carrying a slender apical spine. Body but little pellucid, and of a brick-red colour, more or less mottled with an opaque whitish pigment. Length of adult female scarcely attaining 6 mm, of male about the same.

Remarks. — As above stated, this form was first announced by the Rev. Mr. Norman as a species of the genus *Atylus*, and was subsequently more closely examined by Boeck, and described under another name, viz. *Melphidippa longipes.* It is a very distinct and easily recognizable form, on account of its extremely slender and brittle appendages, and its opaque, brick-red body.

Occurrence. — Along the whole south and west coasts of Norway this form is rather frequently met with, in moderate depths, varying from 6 to 30 fathoms. Owing to the great brittleness of the appendages, it is rather seldom that a specimen is taken quite uninjured. The last pair of uropoda especially are very easily detached from the body.

Distribution. — Shetland Isles (Norman), Kattegat (Meinert).

Gen. 3. **Amathilla,** Sp. Bate, 1863.

Syn.: Amathia, Rathke.

Body rather strongly built, with the segments more or less elevated dorsally. Cephalon comparatively small, with a slight rostral projection, lateral corners distinct. Coxal plates of moderate size, 4th pair the largest, and somewhat emarginated posteriorly in their upper part. Eyes well developed. Antennæ rather strong, subequal, with the flagella composed of numerous short articulations, each encircled by a dense wreath of sensory hairs; the superior ones provided with a well-developed accessory appendage. Antennæ in male somewhat more elongated, and having the opposite edges of the peduncles densely clothed with tufts of sensory hairs, flagella of both pairs furnished with distinct calceolæ. Anterior lip of the usual rounded form; posterior lip without any inner lobes. Mandibles strong and of normal structure, palp rather robust, with the terminal joint falciform in shape, and densely clothed with bristles. First pair of maxillæ with the basal lobe well developed and edged with numerous setæ, palp having the terminal joint scarcely expanded distally. Second pair of maxillæ with the lobes subequal in size. Maxillipeds with the masticatory lobes scarcely larger than the basal ones, palp very robust, and having the terminal joint densely setous. Gnathopoda rather strong, and quite alike in the two sexes, carpus comparatively short, and forming inferiorly a rounded setiferous expansion, propodos obpyriform in shape, with the palm very oblique and imperfectly defined. Pereiopoda strongly developed, and edged with tufts of small spines, the 3 posterior pairs moderately elongated, and having the basal joint laminarly expanded. Branchial lamellæ obliquely folded; incubatory lamellæ large and broad. Last pair of uropoda scarcely projecting beyond the others, rami lanceolate in form, and edged with spines and setæ. Telson entire, with only a very slight emargination at the tip.

Remarks. — The present genus was established by Rathke as early as in the year 1837, to include a species from the Black Sea, *A. carinata;* but, as the generic name he proposed, *Amathia,* was already appropriated, it was changed in 1863 by Sp. Bate, to *Amathilla.* The genus is chiefly distinguished by the thick, dorsally-keeled body, the subequal and rather strongly built antennæ, the comparatively robust structure of the gnathopoda and pereiopoda, and the form of the telson. Besides the above-mentioned exotic form, the genus comprises 2 northern species, to be described below. The *Gammarus pinguis* of Kröyer, which has generally been referred to this genus, ought in my opinion to be removed as the type of a separate genus, as it differs considerably, in several points, from the true members of the present genus.

5. **Amathilla homari** (Fabr.)

(Pl. 172, Pl. 173, fig. 1.)

Gammarus homari, C. Fabricius, Supplem. ent. Syst. p. 418.

Syn.: Gammarus arenarius, O. Fabr.
» Gammarus Sabini, Leach.
» Amathia Sabini, Sp. Bate.

Body in female very robust and rather tumid, in male considerably more compressed. Mesosome and metasome distinctly carinated dorsally throughout, the segments being elevated to compressed laminar projections increasing in size posteriorly, that of 1st segment rather broad, and terminating in front in an acute corner overlapping the base of the cephalon. First segment of urosome deeply impressed at the base dorsally, and forming behind the depression a well-marked laminar projection. Cephalon much shorter than the first 2 segments of mesosome combined, and somewhat depressed above, rostral projection distinct, though not very large, lateral corners obtusely truncated at the tip, and defined behind by a well-marked incision. First pair of coxal plates rather small, with the anterior corner somewhat produced; 2nd pair obliquely truncated at the tip; 3rd and 4th pairs much broader in female than in male, though scarcely deeper than the corresponding segments; 4th pair slightly emarginated in their upper part, the emargination being defined below by an angular projection; 5th pair nearly twice as broad as they are deep, and having the anterior lobe a little larger than the posterior one. Last pair of epimeral plates of metasome nearly rectangular. Eyes rather large, oblong reniform, pigment dark brown. Superior antennæ in female about equalling in length $^1/_3$ of the body, 1st joint of the peduncle about the length of the cephalon, and much shorter than the other 2 combined, flagellum exceeding the peduncle by about $^1/_3$ of its length, and composed of numerous very distinctly defined articulations, accessory appendage very slender, exceeding $^1/_4$ of the length of the flagellum, and composed of about 7 articulations. Inferior antennæ a little shorter than the superior, last joint of the peduncle not attaining the length of the penultimate one, flagellum about the length of the peduncle, and, like that of the superior antennæ, composed of numerous short articulations, each having, in addition to the wreath of cilia, a distinct calceola. Antennæ in adult male much more slender than in female, the inferior ones being the longer, with the flagellum considerably exceeding the peduncle in length. Gnathopoda a little unequal in size, the posterior ones being the larger, propodos in both pairs about the length of the 3 preceding joints combined, palmar edge densely setous, and armed with a number of strong spines. Pereiopoda moderately strong, the 3 posterior pairs somewhat increasing in length, and having the outer joints but little expanded, basal joint of last pair much broader than that of the 2 preceding pairs, and having the posterior edge angularly curved in the middle. Last pair of uropoda with the outer ramus a little larger than the inner, both being densely setous on the inner edge. Telson reaching to the end of the basal part of the last pair of uropoda, and oblong linguiform in shape, nearly twice as long as it is broad at the base, outer part slightly tapering, and having on either side a minute denticle, tip obtusely rounded and minutely serrulated, with a very small sinus in the middle, on either side of which occurs a rather strong spinule. Colour somewhat variable, now uniformly olive-green, now yellowish variegated with brownish patches. Length of adult female reaching 38 mm.

Remarks. — As recently pointed out by the Rev. Mr. Stebbing, this form was first recorded by J. C. Fabricius under the name of *Gammarus homari,* it being stated to partly constitute the food of the common lobster. It was somewhat later described by O. Fabricius under another name, viz., *Gammarus arenarius.* The *Gammarus Sabini* of Leach is the same species, and under this specific name it has generally been recorded by the several authors. It is a magnificent and easily recognizable form, well distinguished both by its comparatively large size, and by the strongly-carinated and spinous back.

Occurrence. — The species occurs along the whole coast of Norway, from the Christianiafjord to Vadsø, in comparatively shallow water among algæ; but seems to attain a much fuller development in the arctic region than in more southern latitudes.

Distribution. — Greenland (Fabr.), Spitsbergen (Goës), the Murman Coast (Jarzynsky), arctic America (Stimpson), British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux).

6. **Amathilla angulosa** (Rathke).

(Pl. 173, fig. 2).

Gammarus angulosus, Rathke, Acta Acad. Leopold. T. XX, p. 72, Pl. III, fig. 3.

Body short and stout, with the back distinctly carinated, the carina being, however, but very little elevated, forming no distinct dorsal projections. First segment of urosome with a saddle-like depression dorsally, and slightly carinated behind this. Cephalon nearly as long as the first 2 segments of mesosome combined, lateral corners evenly rounded. Coxal plates nearly as in the type species, except that the 5th pair have the posterior lobe deeper than the anterior. Last pair of epimeral plates of metasome obtusely angular at the lateral corners. Eyes oblong in form, with dark brown pigment. Antennæ comparatively shorter and stouter than in *A. homari,* and nearly equal in length, accessory appendage of the superior ones composed of only 4 articulations. Gnathopoda exactly alike both in size and structure, otherwise resembling those in the type species. Pereiopoda short and stout, the posterior pairs being scarcely more elongated than the anterior, basal joint of last pair oval in form, with the posterior edge evenly curved. Last pair of uropoda about as in *A. homari,* being however edged with a smaller number of spines and setæ. Telson oval quadrangular in form, scarcely longer than it is broad at the base, and not nearly reaching to the end of the basal part of the last pair of uropoda, tip slightly emarginated in the middle, and armed, on each side of the emargination, with a slender spine. Colour yellowish, mottled with reddish brown. Length of adult female scarcely exceeding 10 mm.

Remarks. — This species was first distinguished from the preceding one by Rathke, but has been subsequently regarded by most authors as only a smaller variety of it. Boeck however maintained the species, and I have myself come to the same result. Besides by its much inferior size, it may be easily distinguished from *A. homari* by the want of distinct dorsal projections, whereas the latter in equal-sized specimens of *A. homari* are fairly conspicuous. Moreover the antennæ and pereiopoda are comparatively shorter and stouter, and the telson of a rather different form.

Occurrence. — The species is not uncommonly met with along the whole south and west coasts of Norway, at least to the Trondhjemsfjord, and is generally found close to the shore, in company with *Calliopius Rathkei,* which it strongly resembles both in habits and external appearance.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux).

Gen. 4. **Gammaracanthus,** Sp. Bate, 1862.

Body comparatively slender, with the back distinctly carinated throughout, the carina being in most of the segments elevated to distinct dorsal projections. Cephalon produced in front to a greatly projecting acuminate rostrum, lateral corners very small. Coxal plates not very deep; 4th pair scarcely emarginated posteriorly; 5th and 6th pairs distinctly bilobate. Eyes distinct, though small. Superior antennæ rather slender, with a well-developed accessory appendage. Inferior antennæ much smaller than the superior, and rather feeble. Oral parts of normal structure. Gnathopoda rather elongated, and in both sexes provided with strongly developed subcheliform hands. The 2 anterior pairs of pereiopoda of moderate length; the 2 succeeding pairs very slender and elongated, with the basal joint comparatively narrow, last pair much shorter than the 2 preceding ones, with the basal joint slightly expanded. Last pair of uropoda rather large, reaching considerably beyond the others, rami subequal, foliaceous and edged with ciliated setæ. Telson very small, bilobed.

Remarks. — The present genus was established by Sp. Bate, to include the arctic form described by Sabine as *Gammarus loricatus.* It is chiefly distinguished by the distinctly carinated body, the strong rostral projection, the peculiar structure of the gnathopoda, the greatly elongated 3rd and 4th pair of pereiopoda, and finally, by the structure of the last pair of uropoda, and that of the telson. The 2 North American species, *Gammarus mucronatus* Say and *G. macrophthalmus* Stimpson, which are referred by Sp. Bate to this genus, should perhaps more properly be included in the genus *Amathilla.* To the fauna of Norway belongs but a single species, which has formerly been regarded as only a variety of the arctic form, *G. loricatus.*

7. **Gammaracanthus relictus**, G. O. Sars.

(Pl. 174).

Gammaracanthus loricatus, Lovén, Om några i Vennern och Vettern funna Crustaceer. Øfvers. af Kgl. Svenska Acad. Förhandl. f. 1861, p. 287.

Body slender and compressed, with the dorsal keel rather low anteriorly, scarcely forming any distinct projections in front of the 5th segment of mesosome, dorsal projections of the succeeding segments not very large, and terminating each in a very acute point, those of the first 2 segments of urosome triangularly pointed. Cephalon (including the rostrum) about the length of the first 3 segments of mesosome combined, and having on each side, behind the lateral corner, a tuberculiform projection, rostrum but very slightly curved, and not reaching to the end of the basal joint of the superior antennæ, lateral corners very small, rounded. Anterior pairs of coxal plates not as deep as the body, oblong quadrangular in form, and each provided with a longitudinal ridge; 5th and 6th pairs with the lobes triangularly pointed, those of the former pair somewhat unequal, the anterior one being the larger, and nearly as deep as the preceding pair Last pair of epimeral plates of metasome scarcely produced at the lateral corners, being nearly rectangular. Eyes comparatively small, rounded, pigment dark. Superior antennæ nearly half as long as the body, joints of the peduncle successively decreasing in size, flagellum somewhat longer than the peduncle, and composed of about 22 articulations, accessory appendage about the length of the last peduncular joint, and 4-articulate. Inferior antennæ scarcely more than half as long as the superior and much narrower, their basal joint being however much swollen and subglobose in form, last joint of the peduncle somewhat shorter than the penultimate one, flagellum about the length of that joint, and 7-articulate. Anterior gnathopoda fully as large as the posterior, and, like the latter, having the carpus comparatively small, and produced below to a narrow setiferous lobe, propodos very large and considerably expanded distally, palm scarcely longer than the hind margin and slightly curved, being defined below by an obtuse angle armed with several spines, one of which is rather elongated, dactylus long and curved. Posterior gnathopoda with the propodos scarcely larger than that of the anterior ones, and exhibiting a rather different form, being oblong oval, broadest at the base, and gradually tapering distally, palm very oblique and much longer than the boldly-curved hind margin. The 2 anterior pairs of pereiopoda but little longer than the gnathopoda, and having the 2 outer joints about equal-sized; the 2 succeeding pairs extremely slender and elongated, those of penultimate pair attaining nearly $^2/_3$ of the length of the body, both having the basal joint comparatively small and narrow, and the carpal joint nearly twice as long as the meral one; last pair scarcely reaching to the end of the carpal joint of the preceding pair, and having the basal joint somewhat expanded in its proximal part. Last pair of uropoda rather large, rami much longer than the basal part, and oblong oval in form, being edged round by strong, ciliated setæ. Telson very small, nearly twice as broad as it is long, cleft rather wide and angular at the bottom. Colour in the living state of the animal not yet stated. Length of adult female 35 mm.

Remarks. — As above stated, this form, first detected by Prof. Lovén in the lake Wetter in Sweden, has hitherto been recorded as only a variety of *G. loricatus* Sabine, and was described and figured as such by the author in his work: «Histoire naturelle des crustacés d'eau douce de Norwège.» Though it has, most probably, originally developed itself from that arctic form, it exhibits at present, on a closer examination, several very striking differences, and may therefore, with equal reason, be regarded as a distinct species, as was done with the species of *Mysis* occurring in the same lake, and now generally termed *M. relicta,* although it is quite certainly a descendant of the arctic form, *M. oculata* of Fabricius. In order to indicate the paralellism between the 2 above fresh-water crustaceans, as to their genealogical relation to arctic marine forms, I have felt justified in choosing the very same specific name for the Amphipod here treated of, as that proposed by Lovén for the fresh-water Mysis. I have had an opportunity of more closely comparing this form with 2 fine specimens of *G. loricatus* in our Museum, collected off Novaja Semlja, and have found the following differences: The arctic form attains a much larger size, being in one of the 2 specimens fully 43 mm. The body is on the whole more strongly built, and has the dorsal projections considerably larger, and well defined also on the anterior segments of the mesosome. The rostrum is very large, projecting considerably beyond the basal joint of the superior antennæ, and exhibits a distinct and even curve. The superior antennæ appear comparatively shorter, with the flagellum but little longer than the peduncle. The anterior gnathopoda differ rather conspicuously in their structure, being not nearly so strong as the posterior, and having the propodos scarcely at all expanded distally, with the palm much more oblique. The 3 posterior pairs of pereiopoda exhibit a similar mutual longitudinal relation to that in *G. relictus,* but appear of considerably stronger build, and less elongated. Finally, the last pair of uropoda is comparatively shorter.

Occurrence. — The only place, where I have met with this form, is in our largest lake, Mjøsen, where a young specimen was captured, many years ago, and described in my work: «Histoire nat. d. crust. d'eau douce de Norvège». The specimen here delineated was found in Boeck's collection, without however being accompanied by any statement of locality. Probably it was also taken from the lake Mjøsen.

Distribution. — The great lakes of Sweden (Wetter, Wener, stora Lee), Finland, and Russia (Ladoga, Onega).

Gen. 5. **Gammarus,** Fabr. 1776.

Body more or less elongated and compressed, with the back, as a rule, evenly rounded, not carinated, and the segments of urosome provided above with fascicles of spines, Cephalon without any distinct rostrum, lateral corners rather broad, postantennal ones distinct. Anterior pairs of coxal plates of moderate size; 4th pair the largest, and distinctly emarginated in its upper part; the 3 posterior pairs comparatively small. Eyes well developed, with dark pigment. Superior antennæ generally longer than the inferior, and provided with a well-developed accessory appendage. Inferior antennæ rather strongly built, flagellum in male often provided with calceolæ anteriorly. Oral parts normal. Gnathopoda distinctly subcheliform, and more or less strongly developed, being always much more powerful in male than in female. Pereiopoda, as a rule, not very much elongated, the 3 posterior pairs nearly equal-sized, and having the basal joint laminarly expanded. Branchial lamellæ simple, pedunculated; incubatory lamellæ comparatively broad. Last pair of uropoda projecting beyond the others, rami spinous and setiferous, the outer one generally much the larger, and having a small terminal joint. Telson rather small, and cleft to the base.

Remarks. — In the restriction now generally adopted, this genus is chiefly distinguished by the slender, compressed body (the back of which is generally evenly rounded), by the peculiar spinulose armature of the urosome, by the slender antennæ, and by the structure of the last pair of uropoda, and telson. The species are rather numerous and widely distributed, inhabiting both salt and fresh water. The marine forms are chiefly littoral or sublittoral in their occurrence. To the fauna of Norway belong 5 species (to be discribed below), one of which is a true fresh-water form.

8. **Gammarus marinus**, Leach.

(Pl. 175.]

Gammarus marinus, Leach, Lin. Trans. XI, p. 352.

Syn.: Gammarus Olivii, M.-Edw.
» — poecilurus, Rathke.
» — Kröyeri, Rathke.

Body slender and compressed, with the back evenly rounded throughout. Cephalon scarcely as long as the first 2 segments of mesosome combined, lateral corners transversely truncated at the tip, and defined below by a rather deep emargination filled up by the greatly swollen basal joint of the inferior antennæ. Anterior pairs of coxal plates not nearly twice as deep as the corresponding segments; 4th pair scarcely as broad as they are deep, and having the posterior expansion obliquely truncated. Last pair of epimeral plates of metasome but little produced at the lateral corners. Segments of urosome without any dorsal projections, but each provided with 2 above-converging, transverse rows of strong spinules, each row containing from 6 to 9 spinules arranged in 2 groups slightly apart. Eyes very narrow, oblong reniform, occupying nearly the entire height of the front part of the head, pigment very dark. Superior antennæ nearly half the length of the body, 1st joint of the peduncle equalling in length the other 2 combined; flagellum more than twice the length of the peduncle, and composed of about 33 articulations; accessory appendage not quite half as long as the peduncle, and very slender, being composed of about 7 articulations. Inferior antennæ considerably shorter than the superior, and having the flagellum somewhat longer than the peduncle. Gnathopoda not very strong, and in both sexes nearly equal-sized, those in female having the propodos oval quadrangular in form, with the palm somewhat more oblique in the anterior than in the posterior pair; those in male a little stronger, with the propodos more oblong in form. The 3 posterior pairs of pereiopoda comparatively short and stout, with the outer joints edged with fascicles of small spines, basal joint of antepenultimate pair having the infero-posteal corner obtuse-angular. Last pair of uropoda with the outer ramus well-developed, and coarsely spinous on both edges, inner ramus extremely small, scarcely attaining $^1/_3$ of the length of the outer, and narrow conical in form. Telson comparatively small, each half with 2 lateral, and 3 apical spines. Colour yellowish brown, with a pinkish patch on each side, at the base of the pleopoda. Length of adult female 15 mm.

Remarks. — The present species was first described by Leach under the above name. It is quite certainly identical with the form subsequently recorded by Rathke as *G. poecilurus,* and in all probability also his *G. Krøyeri* is the same species. Moreover the *G. Olivii* of M. Edwards must be adduced as a synonym. It has, by most subsequent authors, except Sp. Bate, Boeck and Dr. Hoek, been regarded as only a variety of *G. locusta,* from which however, on a closer examination, it may be easily distinguished by several well-marked characteristics. For instance the lateral corners of the cephalon are rather differently shaped, and the armature of the urosome is also rather unlike. Moreover the eyes are much narrower, the gnathopoda differ less in the 2 sexes, the pereiopoda are shorter and stouter, and finally the uropoda are markedly distinguished by the poor development of the inner ramus.

Occurrence. — The species is found along the whole south and west coasts of Norway, and extends northwards at least to the Trondhjemsfjord, according to Rathke even to the Namsenfjord. It is a true littoral form, being generally found above the usual tide marks, beneath detached moist algæ, in company with *Orchestia littorea* and *Hyale Nilssoni.*

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Copenhagen Museum), Dutch coast (Hoek), coast of France (Chevreux), Mediterranean (Heller), Black Sea (Rathke).

9. **Gammarus locusta,** Linné.

(Pl. 1, Pl. 176, fig. 1.)

Cancer locusta, Linné, Systema Naturæ, ed. 12, p. 1055.

Syn.: Oniscus pulex, O. Fabr.
» Gammarus arcticus, Scoresby.
» — boreus, Sabine.
» — mutatus, Lilljeborg.
» — sitchensis, Brandt.

Body of a similar form to that in the preceding species, though perhaps somewhat less elongated. Cephalon much shorter than the first 2 segments of mesosome combined, lateral corners angularly produced in front and defined below by a rather slight sinus. Anterior pairs of coxal plates, especially in female, considerably larger than in *G. marinus,* and nearly twice as deep as the corresponding segments; 4th pair nearly as broad as they are deep, posterior expansion obtusely truncated at the tip. Last pair of epimeral plates of metasome considerably produced at the lateral corners, terminating in an acuminate point, and having the posterior edge setiferous. Segments of urosome each with a well-marked nodiform dorsal projection, armed with from 3 to 5 small spines, and having on each side, at some distance from these, a group of from 3 to 4 spinules. Eyes reniform in shape, not nearly so narrow as in *G. marinus,* pigment black, with a chalky white coating. Superior antennæ in female not quite half the length of the body, in male somewhat longer, 1st joint of the peduncle about as long as the other 2 combined, flagellum twice the length of the peduncle, accessory appendage rather fully developed, exceeding half the length of the peduncle, and composed of about 8 articulations. Inferior antennæ somewhat shorter than the superior, with the flagellum about the length of the last 2 peduncular joints combined, and in male provided with distinct calceolæ. Gnathopoda in female rather small and somewhat unequal, the posterior ones being very slender, with the propodos narrow oblong, and considerably longer than the carpus; those in male much more strongly built than in female, and very unequal, propodos of the anterior ones obpyriform, of the posterior, much larger, and irregularly quadrangular in form, palm in both pairs very oblique, and armed in the middle with a strong spine. The 3 posterior pairs of pereiopoda comparatively more slender and elongated than in *G. marinus,* and edged with fascicles of slender spines, basal joint of antepenultimate pair produced at the infero-posteal corner to an acute point. Last pair of uropoda with the inner ramus well developed, reaching about to the end of the 1st joint of the outer, and edged with numerous ciliated setæ in addition to the spines. Telson comparatively larger than in *G. marinus,* projecting somewhat beyond the basal part of the last pair of uropoda, each half having near the base a group of 3 unequal spines, and close to the tip another very small spinule, the apical spines being, as in the preceding species 3 in number. Colour somewhat variable, being in female more or less dark brownish green, with a very conspicuous pinkish patch, on each side, at the origin of the pleopoda; in male generally considerably lighter, yellowish brown. Length of adult female 18 mm, that of male generally considerably greater, amounting to 20 mm. Maximum length of arctic specimens 48 mm.

Remarks. — There cannot be any doubt that the *Cancer locusta* of Linné is this species. Arctic specimens attain a much larger size than those found farther south, and have therefore often been referred to separate species, differently named by different authors, such as *G. boreas, sitchensis, mutatus.* A closer examination will however prove, that all these forms belong, in fact, to one and the same species, that first named by Linné as above. It is easily distinguished from the preceding species by the rather different form of the lateral corners of the cepalon, the distinct nodular dorsal projections of the urosome, the much broader eyes, the rather different shape of the gnathopoda in the two sexes, the more slender pereiopoda, and finally, by the structure of the last pair of uropoda and that of the telson.

Occurrence. — Along the whole coast of Norway this species is rather frequently met with in the littoral and sublittoral regions. It also occasionally descends to greater depths, at least to 50 fathoms, and in some places occurs in great abundance among decaying algæ, accumulated on the bottom. Off the coast of Finmark it is often found considerably above low water mark, beneath stones and pebbles.

Distribution. — Arctic Ocean, widely distributed: Greenland, Iceland, Spitsbergen, Franz Joseph's Land, the Kara Sea, the Siberian Polar Sea, Labrador; Atlantic coast of Europe, the Mediterranean, the Black Sea (?).

10. **Gammarus campylops**, Leach.

(Pl. 176, fig. 2).

Gammarus camvylops, Leach, Linn. Transact. XI. p. 360.

Very like the preceding species, but much smaller, and also somewhat less slender in form. Cephalon fully as long as the first 2 segments of mesosome combined, lateral corners obtuse-angular in front, and defined below by a very slight sinus. Anterior pairs of coxal plates comparatively smaller than in *G. locusta;* 4th pair not nearly so broad as they are deep, and having the posterior expansion rather short and slightly serrated on the edge. Last pair of epimeral plates of metasome not much produced at the lateral corners. Segments of urosome somewhat convex above, and having each only 2 dorsal, and, on either side, 2 lateral spinules. Eyes ot a somewhat unusual form, being more or less distinctly instricted in the middle, and sometimes approaching to a sigmoid shape, pigment very dark. Superior antennæ rather slender, and fully half as long as the body, 1st joint of the peduncle somewhat exceeding the length of the other 2 combined, flagellum nearly 3 times as long as the peduncle, accessory appendage rather elongated, and composed of about 6 articulations. Inferior antennæ, as usual, shorter than the superior, with the flagellum about the length of the peduncle, and in male without any trace of calceolæ. Gnathopoda of a similar structure to those in *G. locusta*, except that the propodos of the posterior ones in female appears somewhat shorter, and in male less obliquely truncated. The 3 posterior pairs of pereiopoda rather slender and elongated, basal joint of antepenultimate pair with the infero-posteal corner nearly rectangular. Last pair of uropoda having the inner ramus shorter than in *G. locusta,* not nearly attaining the length of the 1st joint of the outer ramus, and armed with a smaller number of spines. Telson comparatively smaller than in that species, and having on each side only a single spine, besides the subapical and the 3 apical ones. Body rather pellucid. and of a pale greenish colour, with only a faint trace of the pinkish patches at the origin of the pleopoda. Length of adult male scarcely exceeding 6 mm, that of female still less.

Remarks. — This species was first described by Leach, and subsequently figured by Sp. Bate in his well-known work from one of the type specimens preserved in the British Museum. In the figure, the superior antennæ are very short, considerably shorter even than the inferior ones, but, as suggested by Sp. Bate, this may depend upon an accidental mutilation of these appendages in the specimen figured. Otherwise it agrees rather well with the species here described. It is very nearly allied to *G. locusta*, but apparently distinct, differing, as it does, not only in its much inferior size, but also in several other characteristics, the most conspicuous of which is the peculiar shape of the eyes. It is now for the first time added to the fauna of Norway.

Occurrence. — I first found this form occurring in considerable numbers in an oyster-bed on our south coast, lying considerably above the level of the sea. Subsequently I have also met with it in the Christianiafjord, at Moss, where it occurred in quite shallow water among algæ.

Distribution. — British Isles (Leach), Kattegat (Copenhagen Museum).

11. **Gammarus Duebeni**, Lilljeborg.

(Pl. 177, fig. 1).

Gammarus Duebeni, Lilljeborg, Øfvers. af Kgl. Svenska Vet. Acad. Förhandl. 1851, p. 22.

Syn.: Gammarus campylops, Norman (not Leach).
» — locusta, var. C, Hoek.

Form of body about as in *G. locusta.* Cephalon having the lateral corners, as in *G. marinus*, transversely truncated, and defined below by a rather deep sinus. Coxal plates smaller than in *G. locusta*, and more nearly similar to those in *G. marinus.* Last pair of epimeral plates of metasome but slightly produced at the lateral corners. Segments of urosome scarcely produced dorsally, and each provided with 2 dorsal spines, and on either side, with a group of 3 spines, being moreover clothed with numerous rather long hairs. Eyes not very large, and distinctly reniform, as in *G. locusta.* Superior antennæ not quite half as long as the body, 1st joint of the peduncle scarcely attaining the length of the other 2 combined, flagellum about twice the length of the peduncle, accessory appendage not nearly half as long as the latter, and composed of about 6 articulations. Inferior antennæ considerably shorter than the superior, flagellum about the length of the last 2 joints of the peduncle, and in male provided with distinct calceolæ. Gnathopoda in female somewhat resembling those in *G. locusta*, though the propodos of the posterior ones appears less narrow; those in male not nearly so strongly developed as in that species, and also less unequal in size. The 3 posterior pairs of pereiopoda comparatively less slender than in the 2 preceding species, and having their outer part clothed with fascicles of rather long bristles; basal joint of antepenultimate pair rounded at the infero-posteal corner. Last pair of uropoda with the inner ramus but little exceeding half the length of the outer, both rami densely setiferous. Telson rather broad, each half with 4 apical spines, 1 subapical (sometimes wanting on one of the sides), and from 2 to 4 lateral spines near the base, and being besides clothed with long diverging hairs. Body generally of a very dark colour, with 3 pink patches on each side of the metasome, as in *G. locusta.* Length of adult male 15 mm., that of female considerably less.

Remarks. — The short description given by Prof. Lilljeborg of his *G. Duebeni* does not leave any doubt of its identity with the species here treated of. It is likewise quite certain, that the form recorded by Mr. Norman as *G. campylops* is this species, and not that of Leach. Mr. Hoek describes this form as a variety of *G. locusta.* Though very nearly allied to the 3 preceding species, this form may, on a closer examination, be easily distinguished from any of them. As the most conspicuous feature may be named the dense supply of slender hairs clothing the dorsal face of the urosome, as also the 3 posterior pairs of pereiopoda, the last pair of uropoda and the telson. From *G. locusta*, to which it comes nearest, it is moreover at once distinguished by the very different form of the lateral corners of the cephalon, which somewhat resemble those of *G. marinus.*

Occurrence. — I have met with this species very abundantly in brackish pools among the shore-rocks, lying considerably above high-water-mark. It is here often associated with true fresh-water forms, as *Daphnia magna* and *D. pulex*, and with the brackish-water forms: *Tigriopus fulvus*, *Temora velox*, and *Cypris salina.* Occasionally it is also found at the beach, beneath stones or decaying algæ; but I have never observed it freely in the sea.

Distribution. — Kattegat (Lilljeborg), British Isles (Norman), the Dutch coast (Hoek), warm springs of south Greenland (Copenhagen Museum).

12. **Gammarus pulex**, de Geer.

(Pl. 177, fig. 2).

Squille pouce, de Geer, Mémoires pour servir à l'histoire des Insectes, T. VII, p. 525, Pl. 33.

Syn. Gammarus fluviatilis, M. Edw.
» — lacustris, G. O. Sars.
» — neglectus, G. O. Sars.
» — locusta, var. B, Hoek.

Form of body about as in the other species. Cephalon with the lateral corners transversely truncated, but somewhat less broad than in *G. Duebeni,* and defined below by a very deep sinus. Coxal plates of moderate size, and but little differing in shape from those in the said species. Last pair of epimeral plates of metasome but very little produced at the lateral corners. Segments of urosome evenly vaulted above, each with 2 small dorsal spinules and but a single lateral one. Eyes very small, and oval of form, pigment black. Superior antennæ nearly half as long as the body, 1st joint of the peduncle shorter than the other 2 combined, flagellum twice the length of the peduncle, accessory appendage comparatively small, and only composed of 4 articulations. Inferior antennæ, as usual, considerably shorter than the superior, flagellum about the length of the last 2 joints of the peduncle combined, and provided in male with distinct calceolæ. Gnathopoda in female comparatively small, and slightly unequal, the posterior ones being considerably more slender than the anterior, with the propodos very narrow, oblong, and nearly transversely truncated at the tip; those in male somewhat more strongly built, though not very unequal in size, propodos of the anterior ones obpyriform, of the posterior, oblong quadrangular. Pereiopoda comparatively slender and elongated, with the outer joints clothed with fascicles of slender spines, basal joint of antepenultimate pair rounded at the infero-posteal corner. Last pair of uropoda rather elongated, inner ramus about the length of the 1st joint of the outer, and having only a single spine on the inner edge near the base; both rami edged with long, partly ciliated setæ. Telson comparatively small, each half with only a single lateral spine and 2 apical ones. Colour more or less dark brownish green. Length of adult male attaining 20 mm, that of female, as usual, considerably less.

Remarks. — There cannot be any doubt that the «*Squille pouce*» of De Geer is this species. Whether Linné's *Cancer pulex* is the species here treated of, or the *G. locusta*, appears somewhat doubtful; but as both a *Cancer locusta* and a *C. pulex* are quoted, it is most reasonable to believe that these names refer to different species. The *G fluviatilis* of M. Edwards is unquestionably the present species, and very different from the *Sqvilla fluviatilis* of Roessel, which was named by Gervais *G. Roesselii.* In his Catalogue of Amphipoda in the British Museum, Sp. Bate applies the name *G. pulex* to the latter species, whereas the form here treated of is termed *G. fluviatilis.* The inverted application of these 2 names is undoubtedly the most correct. I at first thought the Norwegian form to be a distinct species, as I found it only in greater lakes, not, as stated, with *G. pulex,* in rivers, and on this account I at first recorded it as *G. lacustris* n. sp., subsequently as *G. neglectus* Lilljeborg M. S. I now, however, believe this assumption to be erroneous. Boeck, it is true, records *G. pulex* and *G. neglectus* as two distinct species; but his type specimen of *G. pulex* does not differ in any respect from the form which I had named *G. neglectus.* From the other 4 species here described, this is at once distinguished by its small eyes, the comparatively short accessory appendage of the superior antennæ, and the unusually slender and elongated pereiopoda.

Occurrence. — The present species is a true fresh-water form, and cannot properly be derived from any of the marine species as a so-called «relict» form, since it occurs abundantly in lakes lying from 3000 to 4000 feet above the level of the sea. I have found it in numerous places up to Finmark, generally in greater lakes, but occasionally also in smaller ponds, as also in tranquil dilatations of rivers, for instance in Laugen, at its junction with the Otta river. In nearly all our mountain-lakes it occurs in great numbers, constituting there a substantial food for the trout

Distribution. — Sweden (De Geer), British Isles (Pennant), Holland (Hoek), Germany (Koch), Russia, Siberia (Brandt).

Gen. 6. **Pallasiella,** G. O. Sars.

Syn.: Pallasia, Sp. Bate.

Body narrow and elongated, with the segments sharply marked off from each other, and more or less spiny, those of urosome smooth above, without any fascicles of spinules. Cephalon without any distinct rostrum, but having on each side a tuberculiform projection. Coxal plates not very large, and somewhat protuberant laterally. Eyes large and prominent. Superior antennæ longer than the inferior, with the peduncle very much elongated, and the accessory appendage poorly developed. Oral parts normal. Gnathopoda rather powerful, and but little different in the 2 sexes, though being, as usual, somewhat more strongly built in the male. Pereiopoda slender and elongated, basal joint of the 3 posterior pairs rather large, especially that of the last pair. The 2 anterior pairs of uropoda very unequal in size, the penultimate pair being unusually small, both pairs having the rami subequal and mucroniform, nearly destitute of spines. Last pair of uropoda somewhat projecting beyond the others, rami more or less unequal, the outer one being generally much the larger, and having the terminal joint extremely small. Telson not bipartite, but only more or less incised at the tip.

Remarks. — This genus was established by Sp. Bate, to include an arctic species, *Gammarus cancellus* of Pallas. As, however, the generic name he proposed was already appropriated in zoology, I have snbstituted the diminutive form. It is nearly allied to the gen. *Gammarus*, differing however by the narrow and more or less spinous body, by the absence of any fascicles of spinules on the dorsal face of the urosome, and by the structure of the uropoda and especially that of the telson. The genus comprises several species, one of which belongs to the fauna of Norway, and will be described below. All the species are, as yet known, fresh-water forms.

13. **Pallasiella qvadrispinosa**, (Esmark), G. O. Sars.

(Pl. 178).

Pallasia cancelloides, var. qvadrispinosa, G. O. Sars, Hist. nat. des Crust. d'eau douce de Norvége, p 68, Pl. VI, figs 21—34.

Syn : Gammarus cancelloides, Lovén (not Gerstfeldt).
» — Kessleri, Dybowsky, var. europæa.

Body very slender, with the segments of mesosome produced on each side to an obtuse nodiform prominence, the 2 anterior segments of metasome each armed with 2 strong, juxtaposed, subdorsal spines, curved backwards. Cephalon nearly attaining the length of the first 2 segments of mesosome combined, and having on each side, above the base of the inferior antennæ, an obtuse umboniform projection, lateral corners evenly rounded. Anterior pairs of coxal plates but little deeper than the corresponding segments, and rather narrow, being noncontiguous in their outer part; 4th pair scarcely as deep as the preceding pair, and obliquely truncated at the tip. Epimeral plates of metasome obtusely rounded at the lateral corners. Eyes rather convex, and rounded oval in form, pigment very dark. Superior antennæ scarcely exceeding in length $^1/_3$ of the body, 1st joint of the peduncle nearly as long as the other 2 combined, flagellum not nearly attaining the length of the peduncle, and composed of about 16 articulations, accessory appendage scarcely more than half the length of the last peduncular joint, and biarticulate, with the terminal joint the larger. Inferior antennæ somewhat shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum about the length of the last peduncular joint, and 6-articulate. Gnathopoda in female slightly unequal, the posterior ones being somewhat more slender than the anterior, propodos of the latter obpyriform, of the former oblong oval, with the palm nearly transverse. Both pairs in male comparatively more strongly built than in female, but otherwise of a very similar appearance. Pereiopoda rather slender, and having their outer part edged with fascicles of delicate bristles, basal joint of last pair considerably larger than that of the 2 preceding pairs, and regularly oval in form, with the posterior edge fringed with bristles. Last pair of uropoda of moderate size, with the outer ramus fringed with fascicles of slender bristles, inner ramus scarcely more than $^1/_3$ as long as the outer, and setiferous on the inner edge. Telson subquadrangular in form, a little broader than it is long, and armed on each side with 3 slender spines, posterior incision rather short, terminal lobes narrowly rounded, and each tipped by a slender spine. Colour yellowish grey, each segment with a more or less distinct transverse band of a dark brownish green hue. Length of adult male 15 mm.

Remarks. — The present form is nearly allied to the arctic species, *P. cancelloides* of Gerstfeldt, and was indeed identified with that species by Prof. Lovén. It is distinguished, however, by the far sligter developement of the spiniform projections of the body, only those of the 2 anterior segments of metasome being distinct. Moreover, the structure of the last pair of uropoda is rather different. The *Gammarus Kessleri* of Dybowsky from the Baikal Sea would seem to be this species.

Occurrence. — I have found this form rather plentifully in our largest lake, Mjøsen, in depths varying from 3 to 50 fathoms. It also occurs in 3 other Norwegian lakes, viz, Hurdalsjø, Storsjø and Femsjø, as also in the river Vormen.

Distribution. — The great lakes of Sweden, Finland and Russia, the Baikal Sea (Dybowsky).

Gen. 7. **Melita,** Leach, 1813.

Syn.: Ceradocus, Costa.
» Mæra, Dana.

Body more or less slender, with the segments of mesosome always evenly rounded above, those of metasome and urosome sometimes produced dorsally to dentiform projections. Cephalon without any distinct rostrum, lateral corners rounded. Coxal plates of moderate size, 4th pair the largest, and more or less emarginated posteriorly. Eyes distinct, though rather small. Antennæ of the very same structure in the two sexes, the anterior ones very slender, and much longer than the inferior, accessory appendage more or less developed. Oral parts normal. Gnathopoda rather unequal, the anterior ones comparatively small, and alike in the two sexes, the posterior ones much larger, and in male often enormously developed, approaching sometimes to a cheliform character. Pereiopoda rather elongated, the 3 posterior pairs successively increasing in length, and having the basal joint laminarly expanded. Branchial lamellæ simple; incubatory lamellæ narrow. The 2 anterior pairs of uropoda normal; last pair projecting considerably beyond the others, and having the rami very unequal, the outer one rather large and spinous, with the terminal joint obsolete, the inner very minute and scale-like. Telson small, bipartite.

Remarks. — The present genus was established by Leach as early as in the year 1814, to include the *Gammarus palmatus* of Montagu. It is regarded by Sp. Bate as identical with the genus *Ceradocus* of Costa. Some species referred by Dana to the genus *Mæra* of Leach, ought also to be included in the present genus. It is nearly allied to *Gammarus,* from which it is chiefly distinguished by the small size of the eyes, and by the structure of the gnathopoda. The genus comprises several species both from the northern and southern hemispheres. To the fauna of Norway belong 4 species, to be described below.

14. **Melita palmata,** (Mont.).

(Pl. 179).

Cancer gammarus palmatus, Montagu, Transact. Linn. Soc. Vol. VII, p. 69, Pl. VI, fig. 4.

Syn.: Gammarus Dugèsii, M-Edw.
» — inæqvimanus, Sp. Bate.

Body moderately slender and rather compressed, with the mesosome and metasome quite smooth; 1st segment of urosome produced dorsally to a compressed triangular projection, 2nd to 2 small juxtaposed dentiform processes, each supplied at the base with a stiff bristle. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners somewhat projecting and evenly rounded, having below them a small lobe (the postantennal corners) defined from the former by a short incision. Anterior pairs of coxal plates considerably deeper than the corresponding segments; 1st pair scarcely expanded distally; 4th pair slightly emarginated posteriorly, the emargination being defined below by an angular projection; 6th pair in female having the anterior lobe continued below to a peculiar, spirally-contorted process, wanting in the male. Last pair of epimeral plates of metasome produced at the lateral corners to a short dentiform projection. Eyes very small, rounded, pigment dark brownish. Superior antennæ exceeding half the length of the body, 1st joint of the peduncle scarcely as long as the 2nd, and armed on the posterior edge with 4—5 small spines, 3rd joint about half the length of the 2nd, flagellum somewhat longer than the peduncle, and composed of about 22 articulations, accessory appendage rather small, biarticulate Inferior antennæ much shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum scarcely longer than the last peduncular joint. Both pairs of antennæ fringed on both edges with fascicles of slender bristles. Anterior gnathopoda very small, with the propodos much shorter than the carpus, and gradually widening distally, palm transversely truncated, dactylus in female well defined, in male obtuse and immovable. Posterior gnathopoda in female considerably larger than the anterior, with the carpus expanded below to a broad, setiferous lobe, propodos oval quadrangular in form, and about the length of the 2 preceding joints combined, palm somewhat oblique, and defined below by an obtuse angle, in front of which occur a few short spines; those in male enormously developed, the propodos being exceedingly large and expanded, nearly triangular in outline, with the inferior corner much projecting and rounded off, dactylus impinging against the inner concave face of the former, so as to be quite hidden, when the leg is viewed from outside. The 3 posterior pairs of pereiopoda much stronger than the 2 anterior, and having the basal joint rather large and regularly oval in form, with the posterior edge slightly serrated, that of last pair the largest. Last pair of uropoda about the length of the urosome and the last segment of metasome combined, outer ramus sublinear in form, and fringed on both edges with fascicles of strong spines, tip truncated and carrying a dense brush of unequal spines, inner ramus exceedingly small, and armed with but a single spine. Telson extending somewhat beyond the basal part of the last pair of uropoda, and divided by a deep and rather wide cleft into 2 comparatively narrow lobes, each of which carries at the somewhat obliquely truncated tip 4 small spinules, and on a slight projection of the inner edge, 3 somewhat stronger spines. Colour, according to Bruzelius, brownish. Length of adult female 8 mm, of male about the same.

Remarks. — This form was first described by Montagu as *Cancer gammarus palmatus,* and was subsequently, as mentioned above, considered by Leach as the type of his genus *Melita.* The *Gammarus Dugèsii* of Milne-Edwards is undoubtedly the same species, and this is also the case with *Gammarus inæqvimanus* of Sp. Bate. It is easily distinguishable from the other species of the genus by the armature of the urosome, and especially by the peculiar shape of the posterior gnathopoda in the male.

Occurrence. — The only place, where I have met with this form, is at Hvaloer, at the entrance of Christianiafjord, from which locatity I have a single, well-preserved, female specimen. The figures of the male here given are from French specimens kindly sent to me by M. Chevreux. The species is now for the first time added to the fauna of Norway.

Distribution. — British Isles (Montagu), Bohuslän (Bruzelius), Kattegat (Meinert), Baltic (Zaddach), Dutch coast (Hoek), coast of France (Chevreux), Mediterranean (Costa), Adriatic (Heller), Azores (Chevreux).

15. **Melita obtusata,** (Mont).

(Pl. 180, fig. 1).

Cancer gammarus obtusatus, Montagu, Transact. Linn. Soc. Vol. IX, p. 5, Pl. II, fig. 7.

Syn.: Gammarus podager, M.-Edw.
» — maculatus, Lilljeborg.
» Melita proxima, Sp. Bate.
» Megamæra Alderi, Sp. Bate ♀.

Body somewhat less slender than in the preceding species, and having the penultimate segment of metasome (sometimes also the last one) produced dorsally to a small dentiform projection; 1st segment of urosome armed with 3 juxtaposed dentiform projections, the lateral ones being much the larger, 2nd segment generally with only 2 such projections. Cephalon fully as long as the first 2 segments of mesosome combined, lateral corners broadly rounded, and having below them a very minute dentiform projection. Anterior pairs of coxal plates nearly twice as deep as the corresponding segments, 1st pair slightly expanded distally, and having, like the 2 succeeding pairs, a small dentiform projection at the infero-posteal corner; 4th pair evenly emarginated posteriorly, and slightly projecting below the emargination. Last pair of epimeral plates of metasome considerably produced at the lateral corners, terminating in an acuminate, somewhat upturned point. Eyes small, rounded, pigment dark. Superior antennæ considerably exceeding half the length of the body, 2nd joint of the peduncle the longest, flagellum a little longer than the peduncle, and composed of about 16 articulations, accessory appendage equalling in length the last peduncular joint, and 3-articulate. Inferior antennæ, as usual, shorter than the superior, last joint of the peduncle not quite attaining the length of the penultimate one, flagellum nearly as long as those joints combined. Mandibular palp unusually narrow, and having only a few slender bristles. Anterior gnathopoda with the propodos rather broad, nearly triangular in outline, and fully as long as the carpus, palm somewhat oblique, and imperfectly defined below. Posterior gnathopoda in female somewhat larger than the anterior, propodos oblong oval in form, and nearly equalling in length the 3 preceding joints combined, palm rather oblique, and defined below by an obtuse angle; those in male very large, with the propodos much tumefied, and occupying half the length of the leg, its outer part slightly expanded, palm irregularly serrated, and somewhat insinuated in the middle, being defined below by a triangular lobe, inside which the dactylus impinges when closed, the latter scimitar-shaped, with obtusely rounded apex. Pereiopoda of moderate length, basal joint of the 3 posterior pairs oval in form, with the hind edge distinctly serrated. Last pair of uropoda about the length of the urosome, basal part somewhat elongated, outer ramus oblong linear, with only two small fascicles of spinules on either edge, tip armed with a strong mucroniform spine accompanied on either side with a few small spinules; inner ramus very small, scale-like. Telson not nearly extending to the end of the basal part of the last pair of uropoda, cleft very deep, and gradually widening distally, terminal lobes conically pointed, and each having inside a few small spinules. Body, according to Bruzelius, whitish with red spots, according to Boeck, with flexuous red bands at the extremities of the segments, and across the legs. Length of adult male scarcely attaining 6 mm.

Remarks. — This form also was first described by Montagu, and chiefly distinguished from the preceding species by the shape of the posterior gnathopoda in the male. The *Gammarus maculatus* of Lilljeborg is, according to Bruzelius, identical with the present species, and Mr. Norman has recently pointed out that the *Megamæra Alderi* of Sp. Bate is only the female of *Melita obtusata.* The same author is also inclined to regard *M. proxima* of Sp. Bate and *Gammarus podager* of M.-Edw. as only varieties of the present form.

Occurrence. — I have met with this species occasionally off the south coast of Norway in moderate depths. According to Boeck, it also occurs off the west coast, at Haugesund, and in the neighbourhood of Bergen.

Distribution. — British Isles (Montagu), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux).

16. **Melita pellucida,** G. O. Sars.

(Pl. 180, fig. 2).

Melita pellucida, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 106, Pl. 5, fig. 9.

Body rather slender and perfectly smooth, without any trace of dentiform projections, the urosome having only a few simple bristles dorsally. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners somewhat projecting and evenly rounded, postantennal corners distinct. Anterior pairs of coxal plates nearly twice as deep as the corresponding segments; 1st pair somewhat expanded distally; 4th pair distinctly emarginated posteriorly in their upper part, and having the posterior expansion truncated. Last pair of epimeral plates of metasome but slightly produced at the lateral corners. Eyes small, rounded oval in form, pigment black. Superior antennæ equalling about $^2/_3$ of the length of the body, 1st joint of the peduncle fully as long as the 2nd, 3rd joint exceeding half the length of the latter, flagellum nearly twice as long as the peduncle, and composed of about 18 articulations, accessory appendage extremely small and uniarticulate. Inferior antennæ scarcely more than half as long as the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum not attaining the length of those joints combined. Anterior gnathopoda poorly developed, propodos very small, scarcely more than half as long as the carpus, and subquadrangular in form, palm distinctly defined and transverse. Posterior gnathopoda in female much stronger, propodos about the length of the 2 preceding joints combined, and oval in form, with the palm nearly transverse, and defined below by a distinct angle armed with 2 slender spines; those in male of a similar structure to those in female, but having the propodos considerably larger. The 3 posterior pairs of pereiopoda rather strongly built, and having the outer part edged with fascicles of slender spines, basal joint considerably expanded and regularly oval in form. Last pair of uropoda about the length of the urosome and the last segment of metasome combined, basal part rather short, outer ramus oblong linear in form, with about 3 fascicles of spinules on either side, tip obliquely truncated, and densely clothed with unequal spines, inner ramus, as usual, very small and scale-like. Telson comparatively small, with the lateral lobes obtusely rounded, and armed at the tip with several short spines. Body whitish, pellucid, without any pigmentary ornament. Length of adult male 6 mm, of female considerably less.

Remarks. — The present form is easily distinguished from any of the other species by its perfectly smooth body, the structure of the gnathopoda, and the form of the telson. It looks at first sight very like a *Gammarus.*

Occurrence. — The only place, where I have met with this form, is in a rather large brackish basin, Framvaren, lying between Farsund and Flekkefjord, inside the Listerland. It here occurred rather plentifully among grass, together with *Neomysis vulgaris.* Out af Norway, it has not yet been recorded.

17. **Melita dentata,** (Krøyer),

(Pl. 181, fig. 1.)

Gammarus dentatus, Krøyer, Naturh. Tidsskr. 1 R. Vol. IV. p. 159.

Syn.: Gammarus purpuratus. Stimpson.
» — Krøyeri, Bell.
» Megamæra dentata, Sp. Bate.

Body very slender and compressed, with the posterior edge of the segments of metasome and urosome produced dorsally to a number of dentiform projections, the middle of which is much the largest. Cephalon fully as long as the first 2 segments of mesosome combined, lateral corners somewhat projecting, and evenly rounded, having below them a small dentiform process. Anterior pairs of coxal plates not very large, and but little deeper than the corresponding segments; 1st pair scarcely expanded distally, and like the 2 succeeding pairs, having a small dentiform projection at the infero-posteal corner; 4th pair but slightly emarginated posteriorly. Last pair of epimeral plates of metasome produced at the lateral corners to an acuminate projection. Eyes small, rounded oval in form, pigment black. Superior antennæ very slender, and nearly attaining the length of the whole body, 1st joint of the peduncle shorter than the 2nd, and armed on the inner edge with a number of small spines, the outermost of which is the largest, 3rd joint rather small, scarcely exceeding ¹/₄ of the length of the 2nd, flagellum somewhat longer than the peduncle, and composed of about 40 articulations; accessory appendage very slender, exceeding in length the last peduncular joint, and 5-articulate. Inferior antennæ much shorter than the superior, last joint of the peduncle scarcely as long as the penultimate one, flagellum somewhat longer than the former joint. Mandibular palp rather slender, with the 1st joint produced to a dentiform projection, last joint longer than the middle one. Anterior gnathopoda of moderate size and densely setous, propodos about the length of the carpus, and oblong oval in form, palm rather oblique, and defined below by an obtuse angle. Posterior gnathopoda much stronger than the anterior, with the propodos rather large, especially in the male, and oblong quadrangular in form, palm somewhat oblique and slightly dentated, being defined below by a projecting acute corner, that of male angularly produced above the middle. Pereiopoda very slender and elongated, the 3 posterior pairs successively increasing in length, and having the basal joint very large, oblong oval in form, and distinctly serrated on the hind edge. Last pair of uropoda rather slender, attaining the length of the urosome and the last segment of metasome combined, outer ramus very much elongated, and sublinear in form, with several fascicles of spines on both edges, tip truncated and armed with 4 spines, one of which is rather large; inner ramus extremely small. Telson not nearly extending to the end of the basal part of the last pair of uropoda, terminal lobes conically pointed, and each carrying inside the point 2 spines, outside a single bristle. Body yellowish, with broad transverse bands of a dark reddish brown hue. Length of adult male 20 mm.

Remarks. — This form was first described by Krøyer as *Gammarus dentatus*, and was subsequently referred by Sp. Bate to his genus *Megamæra*. Boeck justly placed it within the genus *Melita,* with which it agrees in all essential characteristics. The *Gammarus purpuratus* of Stimpson is undoubtedly identical with the present species. This is also probably the case with *Gammarus Krøyeri* of Bell, and perhaps also with *Gammarus longicauda* of Brandt. From the other species of the genus this form, is easily distinguishable, not only by its comparatively large size, but also by the very slender and compressed body, the dentated posterior edge of the segments of metasome and urosome, and the structure of the gnathopoda.

Occurrence. — Along the whole coast of Finmark this species is rather frequently met with in moderate depths, from 10 to 50 fathoms. It also occurs not infrequently in the Trondhjemsfjord, and extends southwards along the west coast of Norway at least to Karmø (Boeck).

Distribution. — Arctic Ocean: Greenland (Hansen), Iceland (Torell), Spitsbergen (Goës), the Barents Sea (Hoek), Jugor Sharr (Hansen), the White Sea (Jarzynsky), Labrador (Packard), Grand Manan (Stimpson); Bohuslän (Bruzelius), Kattegat (Meinert), British Isles (Norman).

Gen. 7. **Eriopisa,** Stebbing, 1890.

Syn: Eriopis, Bruzelius.
» Niphargus, Boeck (not Schödte).

Body slender and smooth, with very small coxal plates. Cephalon without any rostral projection, lateral corners about as in *Melita.* Eyes wanting. Superior antennæ much longer than the inferior, and with a very small accessory appendage. Mandibular palp with the terminal joint much elongated, and clothed with slender setæ. Oral parts normal otherwise. Gnathopoda rather unequal, the posterior ones being much the larger; both pairs subcheliform. Pereiopoda moderately slender, the 3 posterior pairs successively increasing in length, basal joint of last pair much larger than that of the preceding pairs. Last pair of uropoda extremely elongated, with the outer ramus of quite an unusual size, being divided into 2 distinctly defined laminar joints. Telson deeply cleft.

Remarks. — This genus was established in the year 1862 by Bruzelius, to include a peculiar deep-water Amphipod detected by him off the coast of Bohuslän. As, however, the generic name he proposed, *Eriopis*, was already appropriated in Zoology, Mr. Stebbing has recently made the above slight change, namely, of adding an *a*. Boeck did not acknowledge the genus, but referred the form described by Bruzelius to the genus *Niphargus* of Schødte. True, it comes very near to that genus, but in some particulars it differs rather markedly, for instance, in the very unequal development of the gnathopoda, in the likewise unequal posterior pairs of pereiopoda, and in the peculiar structure of the last pair of uropoda. The genus comprises as yet but a single species, to be described below.

18. **Eriopisa elongata,** (Bruzel.).

(Pl. 181, fig. 2).

Eriopis elongata, Bruzelius, Skand. Amph. Gam. p. 65, fig. 12.

Syn: Niphargus elongatus, Boeck.

Body extremely slender and elongated, with the back evenly rounded throughout. Cephalon shorter than the first 2 segments of mesosome combined, lateral corners rather projecting and evenly rounded, having below them a dentiform projection, defined from the former by a narrow incision. Coxal plates scarcely more than half as deep as the corresponding segments; 1st pair angularly produced in front, the 3 succeeding pairs fully twice as broad as they are deep; 4th pair scarcely larger than the 5th, and of a similar shape. Last pair of epimeral plates of metasome produced at the lateral corners to a short dentiform projection. Eyes wholly absent, not even the slightest trace of pigment being visible in the living animal. Superior antennæ very much elongated, attaining the length of the whole body, 1st joint of the peduncle about the length of the 2nd, but considerably thicker, and armed at the end posteriorly with a slender spine, 3rd joint small, scarcely exceeding $1/4$ of the length of the 2nd, flagellum nearly 3 times as long as the peduncle, and composed of about 32 articulations, accessory appendage extremely small, and biarticulate. Inferior antennæ scarcely longer than the peduncle of the superior, last joint of the peduncle not attaining the length of the penultimate one, flagellum scarcely longer than the last peduncular joint. Anterior gnathopoda rather slender, with the propodos about the length of the carpus, and considerably expanded, being nearly triangular in form, palm somewhat oblique, and defined below by a distinct angle. Posterior gnathopoda much stronger than the anterior, with the propodos rather large, and oblong oval in form, palm very oblique and imperfectly defined, being armed with 3 strong spines. The 2 anterior pairs of pereiopoda with the carpal joint much larger than the meral one, and somewhat expanded, basal joint of the 2 succeeding pairs rather narrow, that of last pair, on the other hand, very large and expanded, being regularly oval in form, and distinctly serrated on the hind edge. Last pair of uropoda attaining the length of the urosome and metasome combined, basal part rather short, outer ramus enormously developed and somewhat laminarly depressed, last joint a little shorter than the 1st, and movably articulated to the same, both being edged with small denticles, tip somewhat truncated, and carrying a dense brush of delicate bristles; inner ramus extremely small and scale-like. Telson not very large, subtriangular in form, and divided by a narrow incision into 2 halves, each having at the unequally bidentate tip a slender spine and a small bristle. Colour uniformly yellowish. Length of adult male 11 mm.

Remarks. — As above stated, this form was detected by Bruzelius off the coast of Bohuslän, and described in the above-cited paper as the type of a new genus. It is easily recognizable from any of our other Gammaridæ by its extremely slender form, by the absolute want of eyes, and especially by the enormous development of the last pair of uropoda.

Occurrence. — I have met with this form occasionally in several localities, both of the south and west coasts of Norway, as also in the Trondhjemsfjord, and always in rather great depths, varying from 50 to 400 fathoms. It extends, according to Boeck, northwards to the Lofoten Isles.

Distribution. — Bohuslän (Bruzelius), Kattegat (Meinert), British Isles (Norman).

Gen. 8. **Mæra,** Leach, 1813.

Syn: Leptothoë, Stimpson.
» Megamæra, Sp. Bate.

Body more or less slender, and quite smooth above, with comparatively small coxal plates, the 4th pair of which is scarcely emarginated posteriorly. Eyes present or subobsolete. Superior antennæ longer than the inferior, and provided with a well-developed accessory appendage. Mandibular palps slender and densely setous, with the terminal joint the largest; basal lobe of 1st pair of maxillæ very narrow, and having only a few setæ at the tip. Oral parts normal otherwise. Gnathopoda more or less distinctly subcheliform, and rather unequal, the posterior ones being the larger, and very strongly developed in male. Pereiopoda slender, the 3 posterior pairs stronger than the 2 anterior, and successively increasing in length, with the basal joint more or less expanded. Last pair of uropoda projecting considerably beyond the others, and having both rami well developed and uniarticulate, edged with small spines. Telson comparatively small and bipartite.

Remarks. — This genus was established by Leach as early as in the year 1813, to include the *Gammarus grossimanus* of Montagu. According to Sp. Bate, the genus *Leptothoë* of Stimpson is identical with the present genus. Boeck combined the genus *Megamæra* of Sp. Bate with *Mæra*, and most subsequent authors have adopted this view. The genus is chiefly distinguished by the slender, smooth body, the small size of the coxal plates, the rather full development of the accessory appendage of the superior antennæ, and the structure of the last pair of uropoda, both rami of which are well developed. It comprises several species both from the northern and southern hemisphere. To the fauna of Norway belong only 2 species, to be described below.

19. **Mæra Othonis,** (M.-Edw.)

(Pl. 182, fig. 1).

Gammarus Othonis, Milne-Edwards, Ann. Sci. Nat. Vol. XX, p. 373, Pl. X, fig. 11. ♀.

Syn: Gammarus longimanus Thompson ♂.
» — lævis, Bruzelius.
» Megamæra longimana, Sp. Bate ♂.
» — Othonis, Sp. Bate ♀.
» Mæra longimana, Boeck.

Body moderately slender and rather compressed. Cephalon fully as long as the first 2 segments of mesosome combined, lateral corners angularly produced, and defined from the postantennal ones by an angular sinus. Anterior pairs of coxal plates about as deep as the corresponding segments; 1st pair produced in front to a narrow obtusely acuminate lobe, and, like the succeeding pair, having the terminal edge slightly serrate in its posterior part; 4th pair somewhat smaller than the preceding ones, and simple quadrangular in form. Last pair of epimeral plates of metasome produced at the lateral corners to an acuminate lobe, having below 3 deep serrations, above 2 smaller ones. Eyes well developed, oval reniform, pigment dark. Superior antennæ very slender, exceeding $^2/_3$ of the length of the body, 1st joint of the peduncle about the length of the cephalon, and armed at the tip posteriorly with a slender spine, 2nd joint considerably longer and much narrower than the 1st, 3rd joint small, scarcely $^1/_4$ the length of the former, flagellum longer than the peduncle, and composed of numerous short articulations, accessory appendage twice the length of the last peduncular joint, and composed of 6 articulations. Inferior antennæ scarcely more than half as long as the superior, the last 2 joints of the peduncle about equal-sized, flagellum half the length of the peduncle. Anterior gnathopoda rather slender, and densely setous, propodos about the length of the carpus, and oblong oval in form, palm very oblique and imperfectly defined. Posterior gnathopoda in female somewhat stronger than the anterior, carpus slightly expanded, and terminating below in an angle, propodos fully as long as the 2 preceding joints combined, and of a narrow oblong form, similar to that in the anterior gnathopoda; those of male much more strongly built, with the propodos very large, occupying about half the length of the leg, its form being oblong oval, palm minutely serrate and imperfectly defined, dactylus strong and curved. The 2 anterior pairs of pereiopoda comparatively small; the 3 posterior pairs considerably larger, and having the basal joint rather expanded, and oblong oval in form, with the hind edge serrated. Last pair of uropoda nearly as long as the urosome, rami subequal and narrow lanceolate in form, terminating in a simple, acute point, and edged with small spinules. Telson extending somewhat beyond the basal part of the last pair of uropoda, lateral lobes narrow conical in form, with a single spine attached some distance inside the tip. Colour, according to Bruzelius, light reddish. Length of adult male 11 mm.

Remarks. — Mr. Norman has first pointed out, that the *Megamæra longimana* of Sp. Bate is only the male of his *Megamæra Othonis,* and as the latter specific name is the older, it must be retained for the species. The *Gammarus lævis* of Bruzelius is undoubtedly this species. From the following species it is easily distinguishable by the less slender form of the body, the well-developed eyes, and the structure of the gnathopoda.

Occurrence. — I have only met with very few specimens of this form, which were collected off the south coast of Norway in moderate depths. According to Boeck, it also occurs in the Christianiafjord, at Moss.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), coast of France (Chevreux).

20. **Mæra Lovéni,** (Bruzel.).

(Pl. 182, fig. 2).

Gammarus Lovéni, Bruzelius, Skand. Amph. Gamm. p. 59, fig. 9.

Body exceedingly slender and elongated, with the anterior part nearly cylindric in form. Cephalon scarcely as long as the first 2 segments of mesosome combined, lateral corners narrowly rounded at the tip, and defined below by an even sinus. Coxal plates very small, not nearly as deep as the corresponding segments, 1st pair produced in front to a narrow linguiform lobe, 4th pair about twice as broad as they are deep and scarcely larger than the succeeding pair. Last pair of epimeral plates of metasome produced at the lateral corners to a small dentiform projection. Eyes inconspicuous in alcoholic specimens. Superior antennæ very slender and elongated, equalling the length of the body, without the urosome, the first 2 joints of the peduncle much elongated, especially the 2nd, 3rd joint comparatively small, flagellum not attaining the length of the peduncle, and composed of numerous short articulations, accessory appendage more than twice the length of the last peduncular joint, and composed of about 7 articulations. Inferior antennæ only half as long as the superior, last joint of the peduncle a little shorter than the penultimate one, flagellum scarcely as long as the former joint. Anterior gnathopoda of a structure similar to that in the preceding species, except that the palm of the propodos is somewhat less oblique. Posterior gnathopoda rather powerful, especially in the male, and setous on both edges, propodos very large, and oblong quadrangular in form, palm nearly transverse and defined below by a dentiform projection, inside which is attached a very slender spine, its edge divided into several serrations having between them small spines, dactylus strong and, as in the preceding pair, setous on the outer edge. Pereiopoda slender and elongated, the 3 posterior pairs, as usual, stronger than the 2 anterior, and having the basal joint very narrow. Last pair of uropoda fully as long as the urosome, rami narrow, sublinear in form, and edged with slender spines, the outer being a little longer than the inner, tip of both rami subtruncate, and armed with a dense fascicle of spines. Telson comparatively small, scarcely extending to the end of the basal part of the last pair of uropoda, lateral lobes conical in form, and each having a spine inside the tip, and a small bristle outside the same. Colour in the living state of the animal not yet stated. Length of adult male reaching 25 mm.

Remarks. — The present species, detected by Bruzelius off the coast of Bohuslän, is easily recognizable by its extremely slender and narrow body, the small coxal plates, the imperfectly developed eyes, and the structure of the gnathopoda. It also grows to a much larger size than any of the other species.

Occurrence. — I have not myself met with this form, but Boeck states its occurrence at Christiansund, west coast of Norway, and I have seen a few specimens taken by Mr. Schneider in the neighbourhood of Tromsø.

Distribution. — Greenland (Hansen), Spitsbergen (Goës), Bohuslän (Bruzelius), Kattegat (Meinert), British Isles (Norman).

Gen 9. **Elasmopus,** Costa, 1856.

Syn: Megamæra, Sp. Bate (part).
» Mæra, Heller (part).

Body comparatively strongly built and quite smooth, with the coxal plates of moderate size, 4th pair the largest, and distinctly emarginated posteriorly. Cephalon without any rostrum, and having the lateral corners rounded off. Eyes well developed. Superior antennæ longer than the inferior, and provided with a comparatively small accessory appendage. Oral parts normal. Gnathopoda subcheliform, and rather unequal, the posterior ones being much the larger, and very strongly developed in the male. Posterior pairs of pereiopoda unusually robust, with the joints more or less expanded, and the basal one very large and laminar. Last pair of uropoda not very much elongated, and somewhat robust in structure, with the rami comparatively broad. Telson laminar, and divided by a deep and narrow cleft into two halves, each spinous at the tip.

Remarks. — The present genus, established by Costa, is chiefly distinguished by the short and robust body, the powerful development of the posterior gnathopoda, the unusually strongly built posterior pairs of pereiopda, and the structure of the last pair of uropoda and that of the telson. Besides the typical species described below, Mr. Stebbing has recorded 2 species from the Challenger Expedition, and Boeck says that he has examined species of this genus, both from the west coast of America, and from South Africa.

21. **Elasmopus rapax,** Costa.

(Pl. 183).

Elasmopus rapax, Costa, Crust. Amphip. del Regno di Napoli, p. 212, Pl. IV, fig. 5.

Syn: Megamæra brevicaudata, Sp. Bate.
» Mæra brevicaudata, Heller.
» Elasmopus latipes, Boeck.

Body short and stout, with the back evenly rounded and smooth throughout. Cephalon fully as long as the first 2 segments of mesosome combined, lateral corners broadly rounded, and having below them a projecting lobe obtuse at the tip. Anterior pairs of coxal plates fully as deep as the corresponding segments, 1st pair angularly produced in front, 4th pair with the posterior expansion obliquely truncated. Last pair of epimeral plates of metasome scarcely produced at the lateral corners, posterior edge irregularly indented in its lower part. Eyes rather large and rounded oval in form, pigment very dark. Superior antennæ about half the length of the body, 1st joint of the peduncle nearly as long as the 2nd, and considerably thicker, 3rd joint exceeding half the length of the 2nd, flagellum not quite as long as the peduncle, and composed of numerous short articulations, accessory appendage not attaining the length of the last peduncular joint, and biarticulate. Inferior antennæ considerably shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum not attaining the length of those joints combined. Anterior gnathopoda with the propodos longer than the carpus and somewhat expanded, oval quadrangular in form, palm nearly transverse and distinctly defined below. Posterior gnathopoda in female considerably stronger than the anterior, propodos rather large and oblong oval in form, with the palm very oblique and imperfectly defined below; those of male very powerfully developed, propodos exceedingly large, nearly pyriform in shape, palm very oblique and armed with 2 distinct dentiform projections, in front of which there is a rounded lobe edged with small denticles, dactylus very strong and curved. The 2 anterior pairs of pereiopoda of moderate size, with the propodal joint longer than the carpal one, and edged posteriorly with several strong spines. The 3 posterior pairs of pereiopoda exceedingly robust, with the basal joint very large and laminar. especially in the last pair, and the meral joint considerably expanded distally, being produced on both sides of the insertion of the carpal joint; penultimate pair the longest. Last pair of uropoda projecting somewhat beyond the others, and rather stout, outer ramus somewhat larger than the inner, and provided on the outer edge with 2 dense fascicles of spines, tip of both rami obliquely truncated and densely spinous. Telson rather broad, laminar, scarcely tapering distally, cleft very narrow, fissure-like, and extending nearly to the base, terminal lobes obliquely truncated at the tip, each with from 3 to 4 strong apical spines. Colour in the living state of the animal, not yet stated. Length of adult female 8 mm, of male about the same.

Remarks. — This form was first described by Costa from the gulf of Naples, and was subsequently recorded by Sp. Bate under another name, viz, *Megamæra brevicaudata*. Boeck, who examined a Norwegian specimen, did not recognize in it the typical form, but described it as a new species, *E. latipes*. It is easily distinguishable from any of the other northern Gammaridæ by the unusual robust posterior pairs of pereiopoda, as also by the structure of the last pair of uropoda, and that of the telson.

Occurrence. — I have never myself met with this form, but Boeck states its occurrence in the Christianiafjord. The figures here given are from French specimens kindly sent me by M. Chevreux.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux), Mediterranean (Costa), Azores (Barrois).

Gen. 10. **Cheirocratus,** Norman, 1865.

Syn: Lilljeborgia, Sp. Bate (part).
» Protomedeia, Sp. Bate (part).

Body more or less slender, with the mesosome and metasome smooth, urosome provided dorsally with dentiform projections and stiff bristles. Cephalon without a rostrum, lateral corners forming a small rounded lobe, postantennal ones projecting immediately beneath the former. Coxal plates comparatively small; 4th pair scarcely emarginated posteriorly. Eyes distinct, though rather small. Superior antennæ much shorter than the inferior, and provided with a very small accessory appendage. Oral parts normal, except that the basal lobe of the 1st pair of maxillæ is very broad, and densely setiferous, and that the palps of the maxillipeds are comparatively small and narrow. Gnathopoda in female rather feeble, and nearly equal, not subcheliform, the propodos being very narrow, without any distinct palm; the posterior ones in male greatly developed, with the propodos exceedingly large, and of different shape in the different species. Pereiopoda, as a rule, rather slender, the 3 posterior pairs successively increasing in length, and having the basal joint but little expanded. Last pair of uropoda rather elongated, rami subequal, and narrow lanceolate in form, edged with slender spines. Telson small, and divided by a deep incision into 2 lobes, each of which is spinous at the tip.

Remarks. — This genus was established in the year 1865 by Norman, to include a supposed new form, which he named *C. mantis.* Boeck, however, pointed out that this form is identical with the *Gammarus assimilis* of Lilljeborg, and that the *Gammarus Sundewalli* of Rathke ought to be included in the same genus. From the other known genera of Gammaridæ, this is at once distinguished by the different mutual longitudinal relation of the 2 pairs of antennæ, and by the structure of the gnathopoda. In other respects, however, it shows itself to be a true Gammarid. The species of this genus are very nearly related, and it is indeed a matter of great difficulty to distinguish the females of the different species from each other, whereas the adult males are at once recognizable by the rather different shape of the posterior gnathopoda. According to Boeck, the *Gammarus pugetensis* of Dana ought to be referred to this genus. Besides that species, the genus comprises 4 northern species, all of which belong to the fauna of Norway, and will be described below. Two of these species are now for the first time established.

22. **Cheirocratus Sundewalli,** (Rathke).

(Pl. 184. Pl. 185, fig. 1).

Gammarus Sundewalli, Rathke, Acta Acad. Leop. Vol. XX. p. 65, Pl. III, fig. 2.

Syn: Lilljeborgia shetlandica, Sp. Bate ♂.
« Protomedeia Whitei, Sp. Bate ♀.
» Lilljeborgia Normani, Stebbing.
« Cheirocratus brevicornis, Hoek.

Body moderately slender and rather compressed, with the back evenly rounded. First segment of urosome produced dorsally to 3, 2nd to 4 juxtaposed dentiform projections, having between them stiff bristles; last segment without denticles, but with two bristles. Cephalon about the length of the first 2 segments of mesosome combined, lateral parts, as it were, bifid in front, exhibiting above, a narrow rounded lobe (the lateral corners), and below, a triangularly produced projection (the postantennal corners), both partly obtecting the base of the inferior antennæ, and separated by a narrow incision. Anterior pairs of coxal plates scarcely as deep as the corresponding segments, 1st pair somewhat expanded distally, and angularly produced in front; 2nd pair evenly rounded at the tip, and considerably deeper in male than in female; the 2 succeeding pairs subquandrangular in shape, and successively diminishing in depth; 5th pair fully as deep as the preceding pair, and having the anterior lobe the larger. Last pair of epimeral plates of metasome produced at the lateral corners to an acuminate projection. Eyes rounded, with reddish brown pigment. Superior antennæ scarcely attaining $^1/_3$ of the length of the body, and much shorter than the peduncle of the inferior ones, 1st joint of the peduncle about the length of the 2nd, but much thicker, and having at the end posteriorly 2 slender spines and several delicate bristles, 3rd joint comparatively small, scarcely exceeding in length $^1/_3$ of the 2nd, flagellum about the length of the peduncle, and composed of from 16 to 18 articulations, accessory appendage extremely small and biarticulate. Inferior antennæ nearly twice as long as the superior, last joint of the peduncle much longer than the penultimate one, flagellum shorter than those joints combined. Anterior gnathopoda of same structure in both sexes, carpus rather elongated, and densely setiferous below, propodos somewhat shorter than the carpus, and much narrower, gradually tapering distally, and densely setiferous on both edges, dactylus very small, and denticulated inside. Posterior gnathopoda in female very like the anterior, though a little more slender, and having the propodos about the length of the carpus; those in male very powerfully developed, carpus gradually widening distally, propodos exceedingly large and tumid, ovate in form, and having the distal part of the lower edge clothed with numerous partly ciliated setæ, forming a dense brush extending some way up the inner face, which is moreover armed with 3 denticles, one of which is placed at some distance from the other 2, at the end of the palm, dactylus about half the length of the propodos, and, when closed, impinging, not against the margin, but upon the inner face of the propodos, so as to be quite hidden, when the leg is viewed from outside. The 3 posterior pairs of pereiopoda in both sexes very slender and much elongated, being edged with fascicles of slender spines, basal joint oblong oval, and somewhat tapering distally. Last pair of uropoda fully as long as the urosome, basal part rather elongate, rami scarcely twice as long as the latter, and regularly lanceolate, with scattered spines on both edges. Telson not extending beyond the middle of the basal part of the last pair of uropoda, cleft rather wide and somewhat angular, terminal lobes narrow, and each armed at the obliquely-truncated tip with 3 spines, one of which is very much elongated. Body of a golden yellow colour, with an opaque whitish patch in the anterior part of the mesosome, and mottled all over with small red specks; ova in the marsupial pouch dark blue. Length of adult female 8 mm, of male about the same.

Remarks. — This form was first described in the year 1843 by Rathke as *Gammarus Sundewalli*, and was subsequently referred by Boeck to the genus *Cheirocratus* of Norman. As first pointed out by Boeck, the *Lilljeborgia shetlandica* of Sp. Bate is undoubtedly the male of this species, and Mr. Norman has recently shown, that the *Protomedeia Whitei* of the same author, is nothing else than the female. Also the *Lilljeborgia Normani* of Stebbing and the *Cheirocratus brevicornis* of Hoek ought to be regarded as merely synonyms. This species may be best distinguished from the other forms of this genus, by the peculiar structure of the posterior gnathopoda in the male.

Occurrence. — I have met with this form rather frequently along the whole south and west coasts of Norway, up to the Trondhjemsfjord, in moderate depths, from 3 to 50 fathoms, especially where the bottom is covered with decaying algæ. According to Boeck, it extends northwards to the Lofoten Isles (Skraaven).

Distribution. — British Isles (Norman), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux).

23. **Cheirocratus robustus,** G. O. Sars, n. sp.

(Pl. 185, fig. 2).

Body comparatively shorter and stouter than in the preceding species, otherwise of a very similar appearance, and having the urosome armed in the very same manner. Cephalon shorter than the first 2 segments of mesosome combined, postantennal corners projecting somewhat beyond the lateral ones. Coxal plates comparatively still smaller than in *C. Sundewalli*, 1st pair rather expanded distally; 2nd pair in male but little deeper than the others. Last pair of epimeral plates of metasome considerably produced at the lateral corners. Eyes small, rounded. Superior antennæ fully as long as the peduncle of the inferior ones, with the flagellum exceeding the length of the peduncle, and composed of about 22 articulations. Inferior antennæ with the last 2 joints of the peduncle nearly equal-sized. Anterior gnathopoda with the propodos fully as long as the carpus. Posterior gnathopoda in male very strongly built, and less elongated than in *C. Sundewalli*, propodos of quite an unusual size, being much tumefied and regularly ovate in form, lower edge evenly curved and, like the greater part of the inner face, densely clothed with numerous comparatively short bristles forming a dense fur, palmar face, lying inside the propodos, slightly concaved, and armed with only a single irregular tubercle. The 3 posterior pairs of pereiopoda unusually strongly built, especially in the male, last pair much the strongest, and having the outer joints very broad and compressed, and the dactylus short and stout, basal joint oblong quadrangular in form, with the hind edge distinctly serrate. Last pair of uropoda nearly as in *C. Sundewalli*. Telson broader than it is long, cleft rather wide, terminal lobes each armed at the tip with about 5 spines, none of which is distinguished by any considerable length. Colour pale yellow with small red spots. Length of adult male nearly 10 mm.

Remarks. — Though nearly related to *C. Sundewalli*, this new species is fairly well distinguished by its more robust form of body, the somewhat different structure of the posterior gnathopoda, and the unusually strongly built posterior pereiopoda

Occurrence. — I have met with this form occasionally in the Trondhjemsfjord, and recently also in the Christianiafjord, in moderate depths. Among a number of specimens of *C. Sundewalli*, collected many years ago off the west coast of Norway, I also found some specimens of the present form.

24. **Cheirocratus intermedius,** G. O. Sars, n. sp.

(Pl. 186, fig, 1).

Body rather slender and compressed, somewhat resembling that in *C. Sundewalli*, and having a similar armature of the urosome. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners considerably projecting and somewhat instricted at the base, postantennal ones reaching a little beyond them. Coxal plates about as in *C. Sundewalli*, except that the 1st pair are far less expanded distally, and that the 2nd pair in male are considerably deeper. Last pair of epimeral plates of metasome much produced at the lateral corners, terminating in an acuminate lobe. Eyes rather small, rounded. Superior antennæ considerably shorter than the peduncle of the inferior, flagellum about the length of the peduncle. Anterior gnathopoda with the propodos a little shorter than the carpus. Posterior gnathopoda in male exceedingly large and rather elongated, with the propodos of a somewhat unusual form, being much tumefied at the base, and rapidly tapering distally, palm occupying the greater part of the inferior edge, and evenly concave, being defined below by an obtuse prominence armed with 3 denticles, the second of which is bifid, palmar edge densely setous, and having, somewhat inside, two distant denticles, its outermost part being divided into 2 tuberculiform lobes, the posterior one slightly bifid, dactylus rather slender, and, when closed, impinging against the edge, not, as in the 2 preceding species, upon the inner face of the propodos. Pereiopoda in both sexes very slender and elongated, resembling those in *C. Sundewalli.* Last pair of uropoda rather elongated, exceeding the length of the urosome, rami but little longer than the basal part, and edged with scattered slender spines. Telson about as long as it is broad at the base, cleft rather wide, terminal lobes each armed at the tip with 5 spines, one of which is somewhat longer than the others, inner edge having moreover in the middle a small spinule. Body of a pale yellow colour, ornamented with irregular patches of a vivid carmine. Length of adult male reaching 11 mm.

Remarks. — It is only recently that I have become aware of this species, having formerly confounded it with *C. Sundewalli*, to which species it bears a rather close resemblance, especially in the female sex. On a closer examination it may be distinguished, however, by a somewhat more slender form of body, and especially by the very different shape of the posterior gnathopoda in the male.

Occurrence. — This species is by no means rare off the coast of Norway, being found in numerous places both on the south and west coasts up to the Trondhjemsfjord, in moderate depths. The colour, in the living animal, is very beautiful, and somewhat different from that in the other species.

25. **Cheirocratus assimilis,** (Lilljeborg).

(Pl. 186, fig. 2),

Gammarus assimilis, Lilljeborg. Øfvers. af Kgl. Svenska Vetensk. Acad. Förh. 1851, p. 23.

Syn: Cheirocratus mantis, Norman.

Body comparatively slender, resembling that in the last described species, urosome armed in the usual manner. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners somewhat less produced than in *C. intermedius,* postantennal ones, on the other hand, greatly projecting and acuminate. Coxal plates about as in that species. Last pair of epimeral plates of metasome produced at the lateral corners to a rather short acute projection. Eyes somewhat larger than in *C. intermedius,* otherwise of the usual appearance. Superior antennæ not extending to the end of the peduncle of the inferior ones, flagellum about the length of the peduncle. Anterior gnathopoda with the propodos shorter than the carpus. Posterior gnathopoda in male very much elongated, propodos rather large, gradually widening distally, and clothed on both edges with fascicles of short bristles, palm much shorter than the hind margin, and defined below by an acuminate projection bearing at the base a slender spine, palmar edge scarcely setous, but divided into 3 dentiform projections, the anterior of which is rather prominent, and minutely trilobate at the tip, dactylus extremely strong, expanded in the middle and falciform, impinging when closed against the projection defining the palm below. Posterior pairs of pereiopoda in male rather strongly built, last pair much longer than the preceding pairs, and having the joints broad and compressed. Last pair of uropoda exceeding in length the urosome, rami rather broad and twice as long as the basal part, being edged with slender spines. Telson much broader than it is long, cleft rather wide, terminal lobes comparatively broad, and each armed at the tip with only 3 spines, the second of which is somewhat longer than the other 2. Body pale yellow, mottled with small red spots. Length of adult male reaching 13 mm.

Remarks. — This form was first described by Prof. Lilljeborg as *Gammarus assimilis,* on account of its near relationship to *Gammarus Sunde-*

walli of Rathke. As pointed out by Boeck, the *Cheirocratus mantis* of Norman is undoubtedly identical with this species. In the male sex, it is easily distinguishable from any of the other species by the peculiar shape of the posterior gnathopoda, and the strong development of the last pair of pereiopoda. The female, however, is very like that of the other species, and only by a minute examination determinable.

Occurrence. — I have met with this form occasionally in several localities of the west coast of Norway, in moderate depths. According to Boeck, it also occurs off the south coast, at Mandal.

Distribution. — British Isles (Norman), Bohuslän (Bruzelius), Kattegat (Meinert), coast of France (Chevreux).

Gen. 11. **Lilljeborgia,** Sp. Bate, 1862.

Syn: Iduna, Boeck.
» Microplax, Lilljeborg.
» Phædra, Sp Bate (part).

Body, as a rule, not very slender, with the coxal plates of moderate size; 1st pair more or less expanded; 4th pair the largest, and distinctly emarginated in their upper part. Cephalon comparatively small, and slightly produced in front, lateral corners somewhat projecting. Eyes distinct, or wanting. Antennæ not very much elongated, the superior ones, as a rule, shorter than the inferior, and having the last 2 joints of the peduncle very small, flagellum strong and curved, accessory appendage very fully developed. Anterior lip slightly bilobed at the tip, and exhibiting in front an obtuse protuberance; posterior lip without any inner lobes. Mandibles not very strong, molar expansion poorly developed, forming only a small tubercle clothed with slender diverging spines, palp comparatively small and narrow, with the terminal joint much shorter than the middle one. First pair of maxillæ rather small, palp with the terminal joint more or less expanded, basal lobe minute, with only a single bristle. Second pair of maxillæ with the lobes short, the outer being narrower than the inner. Maxillipeds having the palps very large and pediform, basal and masticatory lobes poorly developed. Gnathopoda powerfully developed, with large, subcheliform hands, and the dactylus, to a greater or less extent, coarsely serrate inside, the posterior ones somewhat larger than the anterior, and far more strongly developed in male than in female. The 2 anterior pairs of pereiopoda very slender and feeble in structure, the 3 posterior pairs rapidly increasing in length, and having the basal joint large and laminar. Branchial lamellæ comparatively small; incubatory lamellæ narrow. Last pair of uropoda not very much elongated, and having both rami uniarticulate and lanceolate in form. Telson rather elongated and deeply cleft, each half bidentate at the tip.

Remarks. — The systematic position of this genus, established by Sp. Bate, appears somewhat doubtful. Sp. Bate arranged it within his family *Phoxides*, comprising a number of widely different Amphipoda, and Boeck regarded it as a member of the family *Leucothoidæ.* Mr. Stebbing, having restricted the family *Leucothoidæ* to the genus *Leucothoë,* retained the present genus within the remnant of Boeck's family Leucothoidæ, for which he proposed the name of *Eusiridæ.* The very fully developed accessory appendage of the superior antennæ, as also the more or less conspicuous sexual difference in the structure of the gnathopoda, would, however, seem to remove this genus rather widely both from the genus *Eusirus* and *Rhachotropis,* and to bring it nearer to the family *Gammaridæ,* its species having, indeed, an unmistakable resemblance, at least in external appearance, to those of the genus *Cheirocratus.* In the structure of the oral parts it differs, however, considerably both from this genus and the other Gammaridæ, and in this respect it exhibits in fact a close resemblance to the genus *Leucothoë.* Perhaps therefore, the genus should more properly be regarded as the type of a separate family, and such a view is in fact supported by the existence of a very nearly-allied genus, *Idunella,* to be described below. The *Gammarus bispinosus* of Costa would seem to belong to the present genus, and Mr. Stebbing has added 2 new species from the Challenger Expedition. Another species has recently been described by Mr. Norman as *L. picta.* To the fauna of Norway belong 4 species, to be described below, one of which is now for the first time established.

26. **Lilljeborgia pallida,** Sp. Bate.

(Pl. 187).

Gammarus pallidus, Sp. Bate, Brit. Assoc. Report 1855, p. 55.

Syn: Gammarus brevicornis, Bruzelius.
» Iduna brevicornis, Boeck.

Body rather stout and highly compressed, with the 2 anterior segments of metasome and the 1st of urosome each produced dorsally to a small dentiform projection. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, rostral projection distinct, though rather short, lateral corners somewhat projecting and obliquely rounded, postantennal ones inconspicuous. Anterior pairs of coxal plates somewhat deeper than the corresponding segments, 1st pair considerably expanded distally and, like the 2 succeeding pairs, having a small dentiform projection at the infero-posteal corner; 4th pair much larger than the preceding pairs, with the posterior expansion transversely truncated. Last pair of epimeral plates of metasome produced at the lateral corners to an acute point, posterior edge straight and minutely indented. Eyes rather large, oval quadrangular in form, with very dark pigment, but with the visual elements imperfectly developed. Superior antennæ scarcely exceeding 1/4 of the length of the body, and reaching but little beyond the peduncle of the inferior ones, 1st joint of the peduncle nearly twice as long as the other 2 combined, 3rd joint very small, broader than it is long, flagellum nearly twice the length of the peduncle, and composed of about 20 articulations, of which the 8 outer ones are rather small; accessory appendage very fully developed, exceeding half the length of the flagellum, and composed of 13 articulations. Inferior antennæ exceeding the superior by about 1/3 of their length, last joint of the peduncle somewhat longer than the penultimate one, flagellum not nearly as long as those joints combined. Anterior gnathopoda with the meral joint produced below to an acute point, carpus rather short but prolonged below to a narrow setiferous lobe, propodos about the length of the basal joint, and oval triangular in form, palm slightly curved, and defined below by an obtuse angle armed with 2 juxtaposed spines, its edge sharp, and exhibiting numerous small recurved spinules and slender bristles, dactylus falciform, with 6 strong serrations in its proximal half. Posterior gnathopoda of a similar structure to the anterior, but having the propodos considerably larger, with the palm more oblique and the dactylus coarsely serrated nearly its whole length, the serrations being about 12 in number; those of male considerably larger than in female, but otherwise of a very similar shape. The 2 anterior pairs of pereiopoda very slender, with the propodal joint much longer than the carpal, and edged inside with small bristles, dactylus about 1/3 as long as the propodal joint. The 3 posterior pairs of pereiopoda having the basal joint rather expanded and regularly oval in form, with the hind edge serrate; last pair nearly attaining 2/3 of the length of the body, meral joint about the length of the carpal one, propodal joint somewhat longer, and concially tapering, edged outside with fascicles of slender bristles, dactylus about 1/3 as long as the propodal joint, and straight, styliform. Last pair of uropoda with the rami subequal in length, the inner being, however, much broader than the outer, especially in the male, and armed on the inner edge with 3 or 4 short spinules. Telson nearly twice as long as it is broad at the base, cleft very narrow and extending nearly to the base, terminal lobes bidentate at the tip, and each provided with a slender apical spine. Body of a pale orange colour, with the anterior part of the intestine shining through the integuments as a dark shadow. Length of adult female 8 mm, of male nearly 10 mm.

Remarks. — This form was first described by Sp. Bate as *Gammarus pallidus,* and subseqently regarded by him as the type of his genus *Lilljeborgia.* The *Gammarus brevicornis* of Bruzelius, upon which Boeck founded his genus *Iduna*, is undoubtedly the same species. It is easily distinguishable from the other species by the comparatively large and very black eyes.

Occurrence. — The species occurs along the whole coast of Norway, from the Christianiafjord to Vadsø, in depths ranging from 40 to 300 fathoms. In the Trondhjemsfjord I have found it in some places in great abundance.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), coast of France (Chevreux),

27. **Lilljeborgia Kinahani,** (Sp. Bate).

(Pl. 188, fig. 1).

Phœdra Kinahani, Sp. Bate, Cat. Amph. Brit. Mus. p. 119, Pl. XXI, fig. 1.

Body very short and stout, with broadly rounded back, and the 2 anterior segments of metasome each armed dorsally, at the posterior edge, with 3 juxtaposed denticles, of which the middle one is the largest; the first 2 segments of urosome each produced dorsally to a small denticle. Cephalon rather short and deep, with the rostral projection distinct, lateral corners considerably projecting, and obtusely acuminate at the tip. Anterior pairs of coxal plates scarcely deeper than the corresponding segments, 1st pair broader than the 2 succeeding ones, but scarcely expanded distally; 4th pair rather narrow, and angular in their outer part. Last pair of epimeral plates of metasome produced at the lateral corners to a small, somewhat recurved point, defined above by a slight sinus, posterior edge smooth. Eyes small, rounded, with black pigment. Antennæ rather short; the superior ones extending a little beyond the peduncle of the inferior, peduncular joints about as in *L. pallida*, flagellum but little longer than the peduncle, and composed of about 12 articulations, accessory appendage exceeding half the length of the flagellum, and 7-articulate. Inferior antennæ with the last joint of the peduncle scarcely longer than the penultimate one. Gnathopoda of a similar structure to that in the type species, the anterior ones, however, having the basal joint abruptly dilated in its proximal part, and the dactylus only armed with 3 serrations at the base; dactylus of the posterior gnathopoda serrated only in its proximal half, the serrations being 6 in number. Pereiopoda comparatively less slender than in *L. pallida*, last pair having the meral joint rather broad and shorter than the carpal one, propodal joint setous on the outer edge, dactylus about half its length and very slender. Last pair of uropoda with the outer ramus quite naked, inner one armed with only a single denticle on the inner edge. Telson having the cleft rather wide, and extending nearly to the base, terminal lobes considerably diverging, and each armed at the bidentate tip with a slender spine. Body whitish, pellucid, with reddish violet, translucent intestine. Length of adult female scarcely exceeding 3 mm.

Remarks. — This form, first described by Sp. Bate, was referred by that author to his genus *Phædra,* though in all characteristics it is a true *Lilljeborgia*, and even very nearly allied to *L. pallida*, from which it is chiefly distinguishable by its small size, the different armature of the metasome, the small rounded eyes, and the somewhat different shape of the telson.

Occurrence. — I have only met with this species in 2 localities of the Norwegian coast, viz, at Haugesund and in the Trondhjemsfjord. In both localities it occurred very sparingly in a depth of 6—10 fathoms, on a bottom of coarse sand. It is now for the first time added to the fauna of Norway.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux).

28. **Lilljeborgia macronyx,** G. O, Sars, n. sp.

(Pl. 188, fig. 2).

Body considerably more slender than in the last species, with the 2 anterior segments of metasome and the 1st segment of urosome each produced to a single small dentiform projection. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection well marked, lateral corners sligthly produced, and obtusely acuminate at the tip. Anterior pairs of coxal plates fully as deep as the corresponding segments, 1st pair somewhat expanded distally; 4th pair angularly produced below the posterior emargination. Last pair of epimeral plates of metasome produced at the lateral corners to a very small dentiform projection. Eyes inconspicuous in alcoholic specimens. Superior antennæ somewhat exceeding in length $^1/_3$ of the body, and reaching considerably beyond the peduncle of the inferior ones, flagellum nearly twice the length of the peduncle, and composed of about 12 articulations, accessory appendage rather slender, somewhat exceeding half the length of the flagellum, and 8-articulate. Inferior antennæ with the last 2 joints of the peduncle nearly equal-sized, flagellum not attaining the length of those joints combined. Gnathopoda rather strongly developed, otherwise of a similar structure to that in the 2 preceding species, dactylus of the anterior ones with only 3 serrations at the base, that of the posterior ones with 7 serrations occupying the proximal half. The 2 anterior pairs of pereiopoda extremely slender, with the dactylus rather elongated; the 3 posterior pairs rapidly increasing in length, and having the basal joint large and laminar, especially in the last pair; the latter very much elongated, with the propodal joint smooth, and the dactylus extremely slender, nearly equalling the length of that joint. Last pair of uropoda with the rami comparatively narrow, the inner one, as usual, somewhat broader than the outer, and having 3 small denticles on the inner edge. Telson very narrow, nearly 3 times as long as it is broad, cleft extending nearly to the base, terminal lobes tapering and minutely bidentate at the tip, each with a very small apical spine. Colour in the living state of the animal not yet stated. Length of adult female 6 mm.

Remarks. — The present new species is nearly allied to *L. pallida*, differing, however, very markedly in the want of distinct eyes, and in the very slender form of the pereiopoda, the dactylus of which, especially of the last pair, is unusually elongated; hence the specific name.

Occurrence. — Only two specimens of this form have hitherto come under my inspection; the one found at Hvaloer, outer part of the Christiania-fjord, the other at Rodbjerget in the Throndhjemsfjord. In both places it was taken from a very great depth, 200—400 fathoms.

29. **Lilljeborgia fissicornis**, (M. Sars),

Gammarus fissicornis, M. Sars, Oversigt over norsk-arktiske Krebsdyr, Chr. Vid. Selsk. Forh. 1858, p. 147.

Syn: Iduna fissicornis, Boeck.
— Gammarus pallidus, Goës (not Sp. Bate).

Body moderately slender, with the segments of metasome including the last one) each produced dorsally to a dentiform projection; the 2 anterior segments of urosome each armed dorsally with a rather large and compressed, triangularly-pointed projection. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection rather small, lateral corners subangular, postantennal ones small, but distinct. Anterior pairs of coxal plates somewhat deeper than the corresponding segments, 1st pair considerably expanded distally, 4th pair with the posterior expansion angular. Last pair of epimeral plates of metasome produced at the lateral corners to a small dentiform projection. Eyes wholly wanting, not even the slightest trace of any pigment being visible in the living animal. Superior antennæ somewhat exceeding $^1/_4$ of the length of the body, and scarcely reaching beyond the peduncle of the inferior ones, flagellum nearly twice the length of the peduncle, and composed of 18—20 articulations, accessory appendage exceeding half the length of the flagellum, and composed of 10—12 articulations. Inferior antennæ of the usual structure. Gnathopoda rather strong, both pairs having the palm of the propodos defined below by a somewhat projecting angle armed with several strong spines, dactylus of the anterior ones with 4 serrations at the base, that of the posterior with about 9 serrations, occupying the proximal $^2/_3$ of the dactylus. Posterior gnathopoda in male rather unlike those in female, having the propodos exceedingly large and much dilated at the base, its outer part tapering distally, palm nearly straight and finely ciliated, terminating in front in an angular, slightly dentated lobe, dactylus enormously developed and much curved, without any trace of serrations. The 3 posterior pairs of pereiopoda rapidly increasing in length, and having the basal joint less expanded than in the other species, and of an oblong form; last pair very much elongated, and rather more strongly built in male than in female, propodal joint carrying small bristles on both edges, dactylus comparatively short. Last pair of uropoda of the usual structure. Telson considerably more elongated in male than in female, cleft very narrow, and extending somewhat beyond the middle, terminal lobes bidentate at the tip, and each carrying a slender apical spine. Colour uniformly yellow. Length of adult female 10 mm., of male 11 mm. Maximum length of arctic specimens 20 mm.

Remarks. — This form was first described by my late father as *Gammarus fissicornis,* and was subsequently erroneously identified by Goës with *G. pallidus* of Sp. Bate. From the latter species it is at once distinguished by the absolute want of eyes, and by the very large dorsal projections of the 2 anterior segments of the urosome. The sexual difference in this form is very prominently revealed in the structure of the posterior gnathopoda; the last pair of pereiopoda also are much more strongly built in the male than in the female, both characteristics thus strongly recalling the genus *Cheirocratus.*

Occurrence. — Off the coast of Finmark this form is not infrequently met with in greater depths, varying from 50 to 200 fathoms. It extends southwards along the Nordland coast, at least to the Throndhjemsfjord, where, in some places, it is rather abundant, for instance at Bejan, in the outer part of that fjord.

Distribution. — Arctic Ocean: Greenland (Hansen), Spitsbergen (Goës), Bohuslän (Malm).

Gen 12. **Idunella,** G. O, Sars, n.

Form of body about as in *Lilljeborgia.* Urosome without any dorsal projections. Eyes imperfectly developed. Antennæ subequal in length, the superior ones with a well-developed accessory appendage. Oral parts resembling those in *Lilljeborgia*, except that the mandibular palps are much more fully developed, with the terminal joint elongated and falciform, and that the palps of the maxillipeds are smaller. Gnathopoda in female subequal, with the carpus but slightly produced below, and the propodos much expanded distally, dactylus smooth. Anterior gnathopoda in male much larger than the posterior, and peculiarly modified, being conspicuously forcipate, with the palm of the propodos deeply concave, and produced below to an acute projection, against which the strongly curved dactylus impinges when closed. Pereiopoda nearly as in *Lilljeborgia.* Last pair of uropoda with the outer ramus distinctly biarticulate. Telson rather large and deeply cleft.

Remarks. — This new genus is founded upon the form described at an earlier date by the author as *Lilljeborgia æqvicornis.* On a closer examination of this form, I have found it to differ in several points so very markedly from the other species of *Lilljeborgia,* as more properly to be regarded as the type of a separate, though closely allied genus, for which I have proposed the above name, being the diminutive form of *Iduna.* Besides in the subequal antennæ, and in the remarkable structure of the gnathopoda in the two sexes, it differs in the much fuller development of the mandibular palps, whereas the palps of the maxillipeds are not nearly so strong as in the genus *Lilljeborgia*: it further differs in the outer ramus of the last pair of uropoda being distinctly biarticulate. The genus comprises as yet but a single species, to be described below.

30. **Idunella æqvicornis**, G. O. Sars.

(Pl. 190).

Lilljeborgia æqvicornis, G. O. Sars, Prodromus Crust. & Pycnog. Exp. Norvegicæ No. 103.

Body moderately slender and rather compressed, with the 2nd segment of metasome produced dorsally to a small dentiform projection, the back being otherwise evenly rounded throughout. Cephalon nearly as long as the first 2 segments of metasome combined, rostral projection small, lateral corners rather produced and narrowly rounded at the tip, postantennal ones very slight. Anterior pairs of coxal plates nearly twice as deep as the corresponding segments, 1st pair very much expanded, especially in the male, with the terminal edge evenly rounded and, like the 2 succeeding pairs, provided at the infero-posteal corner with a small dentiform projection; 4th pair very large, angular, and deeply emarginated posteriorly in their upper part. Last pair of epimeral plates of metasome produced at the lateral corners to a small, upturned dentiform projection, posterior edge strongly curved in the middle, and quite smooth. Eyes consisting on each side of a small, somewhat oval patch of a whitish pigment, without any trace of visual elements. Superior antennæ somewhat exceeding $^1/_4$ of the length of the body, 1st joint of the peduncle scarcely longer than the other 2 combined, flagellum about the length of the peduncle, and composed of about 12 articulations, accessory appendage not attaining half the length of the flagellum, and composed of 5 articulations. Inferior antennæ scarcely as long as the superior, last joint of the peduncle a little shorter than the penultimate one, flagellum not attaining the length of these joints combined. Anterior gnathopoda in female with the basal joint somewhat fusiform in outline, and setous on both edges, propodos very large and expanded, fully as long as the basal joint, and gradually dilated distally, palm nearly transverse, and slightly curved, being defined below by a distinct angle carrying 2 unequal spines, dactylus slender and curved. Posterior gnathopoda of a similar structure to the anterior, but having the propodos a little smaller. Anterior gnathopoda in male exceedingly large, propodos longer than the remaining part of the leg, and produced below to an acuminate projection, its outer part gradually tapering distally, palm distinctly concave, and produced in front to a small dentiform lobe, dactylus exceedingly slender and much curved. Pereiopoda rather slender, the 3 posterior pairs successively increasing in length, and having the basal joint much expanded and oval in form, last pair exceeding half the length of the body, propodal joint a little longer than the carpal, and but sparingly setous, dactylus comparatively short and thin. Last pair of uropoda with the rami subequal in length, inner one lanceolate, outer, much narrower, and having the terminal joint spiniform. Telson about twice as long as it is broad at the base, and but slightly tapering distally, cleft narrow and extending beyond the middle, terminal lobes unequally bidentate at the tip, and each carrying 2 apical spines. Colour uniformly pale yellow. Length of adult female scarcely attaining 7 mm, of male about the same.

Remarks. — This form was detected during the Norwegian North Atlantic Expedition, and was described by the author in the account of the Crustacea of that Expedition as *Lilljeborgia æqvicornis.* It is an easily recognizable form, the male sex especially being very easily distinguished by the peculiar forcipate structure of the anterior gnathopoda.

Occurrence. — The only place on the Norwegian coast, where I have met with this form, is at Bugo in the Varangerfjord. It occurred here rather sparingly in a depth of 50—100 fathoms.

Distribution. Stat. 31, 224 and 273 of the Norwegian North Atlantic Expedition (off Storeggen, Jan Mayen, the Barents Sea).

Fam. 21. Photidæ.

Body more or less slender and perfectly smooth, with the coxal plates in some cases very small, in others rather deep. Cephalon without any rostrum, and having the lateral corners more or less produced. Eyes generally distinctly developed. Antennæ slender, with elongated peduncles, the inferior ones, as a rule, more strongly built than the superior, the latter generally with an accessory appendage, though this is sometimes wanting. Antennæ in male of same structure as in the female. Oral parts normal. Gnathopoda more or less unequal, one of the pairs being peculiarly modified in the male. Pereiopoda moderately slender, the 3 posterior pairs, as a rule, increasing successively in length, and having the basal joint more or less expanded. Last pair of uropoda generally small, and but little differing from the preceding pairs. Telson more or less conspicuously tubular, receiving within it the terminal part of the intestine.

Remarks. — The present family includes the 3 subfamilies of Boeck: *Leptocheirinæ, Microdeutopinæ*, and *Photinæ.* Finding it quite impossible to make a satisfactorily distinct definition of these 3 groups separately, I have preferred to combine them in one family, which may more properly be named after the genus first established, viz, that of *Photis* Kroyer. It is chiefly distinguished from the *Gammaridæ* by the structure of the last pair of uropoda, and that of the telson, which latter exhibits a more or less distinct tubular shape, on account of its receiving within it the terminal part of the intestine. Some of the forms pertaining to this family are stated to construct abodes in which they take shelter, thus approaching in their habits the true domicolous forms belonging to the 2 succeeding families. The present family comprises 10 Norwegian genera.

Gen. 1. **Microdeutopus,** Costa, 1853.

Syn: Lembos, Sp. Bate.
» Autonoë, Bruzelius (part).

Body slender and but little compressed, with the coxal plates comparatively small, 1st pair produced in front, especially in the male, 4th pair not emarginated posteriorly. Epimeral plates of metasome comparatively small, and scarcely produced at the lateral corners. Eyes distinct, though rather small. Superior antennæ much longer than the inferior, and provided with a distinct accessory appendage. Anterior lip rounded; posterior lip rather large, with distinctly developed inner lobes, outer lobes produced laterally to an acuminate lappet. Mandibles strong, with the palp of moderate size and having the terminal joint attenuated. First pair of maxillæ with the basal lobe small, unisetose; 2nd pair with the lobes rounded. Maxillipeds with both the basal and masticatory lobes well developed, palp not very large. Gnathopoda in female comparatively small, the anterior ones being a little larger than the posterior, and having the propodos imperfectly subcheliform; propodos of the posterior ones rather narrow, with the palm nearly transverse, and very short. Anterior gnathopoda in male greatly developed, with the carpus extremely large and swollen, being more or less produced in front, so as to form together with the propodos and dactylus a kind of chela. The 2 anterior pairs of pereiopoda of moderate size, and exactly alike; the 3 posterior pairs rapidly increasing in length, and having the basal joint but little expanded. Branchial lamellæ simple; incubatory lamellæ large and broad. Last pair of uropoda not extending beyond the others, basal part somewhat dilated inferiorly, rami sublinear, and sparsely spinous. Telson rather large and thick, oval in shape, with a dorsal fascicle of spines on either side of the obtusely rounded, or slightly angular tip.

Remarks. — This genus was established by Costa in the year 1853, to include the species *M. gryllotalpa*, described below. The genus *Lembos* of Sp. Bate is identical with Costa's genus. It is chiefly distinguished from the nearly-related genera *Aora* and *Autonoë* by the structure of the anterior gnathopoda in the male, the shape of which approaches a cheliform character on account of the unusual development of the carpus. This characteristic is still more pronounced in the genus *Stimpsonia* of Sp. Bate, which is closely allied to the present genus, and should, perhaps, more properly be combined with it. The genus comprises several species from both the northern and southern hemispheres. To the fauna of Norway belong 3 species, to be described below.

1. **Microdeutopus anomalus**, (Rathke).

(Pl 191).

Gammarus anomalus, Rathke, Acta Acad. Leop. T. XX, p. 63, Pl. IV, fig. 7.

Syn: Lembos cambriensis, Sp. Bate.
» Autonoë anomala, Bruzelius.

Body very slender, nearly cylindrical in form, with the back evenly rounded throughout. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, lateral corners somewhat deflexed, and rounded at the tip. Anterior pairs of coxal plates in female scarcely deeper than the corresponding segments; 1st pair forming in front an acute angle, which in the male is prolonged to a strong acuminate projection; the 3 succeeding pairs evenly rounded at the tip; 5th pair having the anterior lobe nearly as deep as the preceding pair. Last pair of epimeral plates of metasome terminating in a narrowly-rounded lobe. Eyes small, round, pigment black, with a whitish coating. Superior antennæ equalling $^2/_3$ of the length of the body, 1st joint of the peduncle nearly as long as the cephalon, and having underneath the tip a slender spine, 2nd joint considerably longer than the 1st, 3rd joint about $^1/_3$ as long as the 2nd, flagellum twice the length of the peduncle, and very slender, being composed of about 22 articulations, accessory appendage well developed, nearly twice as long as the last peduncular joint, and 4-articulate. Inferior antennæ scarcely more than half as long as the superior, the last 2 joints of the peduncle about equal-sized, flagellum equalling in length the last peduncular joint. Anterior gnathopoda in female with the carpus slightly expanded below, and nearly as long as the propodos, the latter somewhat widening distally, with the palm inperfectly defined, and having below a slender spine, dactylus much longer than the palm, and minutely dentated inside. Same legs in male greatly developed, with the carpus very large, and filled up by strong muscular bundles moving the propodos, its anterior corner produced into a strong acuminate projection having below a secondary tooth, propodos much narrower than the carpus and not nearly as long, being slightly arcuate, with the lower edge deeply concave in the middle, and angularly produced in front, dactylus rather elongated and, when closed, impinging against the secondary tooth of the carpal projection. Posterior gnathopoda in female somewhat smaller than the anterior, and having the propodos rather narrow, oblong linear in form, with the palm very short, and the dactylus extremely small; those in male comparatively larger, but otherwise of a similar structure to those in the female. Last pair of pereiopoda very much elongated, exceeding half the length of the body, and having at the tip a dense fascicle of slender bristles. Last pair of uropoda with the inner ramus somewhat shorter than the outer, both having a few lateral spinules and 3 or 4 apical ones. Telson a little longer than it is broad, lateral edges smooth and evenly curved, tip slightly angular, and having on either side a row of 3 slender spines. Body whitish, often with a light reddish tinge, and more or less densely mottled with dark brown pigmentary spots, forming interrupted bands across the segments and the coxal plates. Length of adult female 9 mm, of male about the same.

Remarks. — The present form was described as early as in the year 1843 by Rathke as *Gammarus anomalus*, and was subsequently referred by Bruzelius to his genus *Autonoë*. Sp. Bate at first described the same species under another name, viz, *Lembos cambriensis*, but afterwards he recorded it under the name here given. It is easily distinguished from the other 2 Norwegian species by the rather full development of the accessory appendage of the superior antennæ, and by the structure of the posterior gnathopoda in the male.

Occurrence. — The species is found not infrequently along the whole south and west coasts of Norway, at least to the Trondhjemsfjord, in moderate depths varying from 6 to 30 fathoms, especially where the bottom is muddy and covered by decaying algæ.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), coast of France (Chevreux), Azores (Barrois).

2. **Microdeutopus danmoniensis,** (Sp. Bate).

(Pl. 192, fig. 1).

Lembos danmoniensis, Sp. Bate, Brit. Ass. Rep. 1855, p. 58.

Syn: Microdeutopus gryllotalpa, Sp. Bate (not Costa).

Very like the preceding species, as to the outer appearance, but of smaller size. Cephalon nearly as long as the first 2 segments of mesosome combined, lateral corners rather produced, and somewhat obliquely deflexed. Coxal plates nearly as in *M. anomalus*. Last pair of epimeral plates of metasome scarcely at all produced at the lateral corners. Eyes rounded oval, and a little larger than in the said species. Superior antennæ somewhat exceeding half the length of the body, peduncle as in *M. anomalus,* flagellum but little longer than the peduncle, and composed of about 16 articulations, accessory appendage comparatively small, scarcely longer than the last peduncular joint, and biarticulate. Inferior antennæ scarcely differing in structure from those in the preceding species. Anterior gnathopoda in female somewhat less slender than in *M. anomalus*, and having the propodos considerably longer than the carpus; those in male somewhat resembling the same legs in the male of *M. anomalus*, but having the carpal projection shorter, with the secondary tooth removed from its base, and the propodos less deeply excavated below. Posterior gnathopoda in the 2 sexes scarcely differing from those in the preceding species. Last pair of pereiopoda less elongated, scarcely exceeding half the length of the body. Uropoda and telson of the usual structure. Body whitish mottled with dark brown. Length of adult male scarcely exceeding 5 mm.

Remarks. — The validity of this species might perhaps be questioned, since it comes so very near to the preceding form, its distinguishing characteristics appearing merely as signs of imperfect development. Having, however, collected numerous specimens, both males and females, the latter with fully developed incubatory pouch, and having found all the specimens to agree exactly in the characteristics mentioned above, I am induced to regard this form as in fact specifically distinct. It is only quite recently, after the plate was printed, that I have become aware of the identity of this form with the species described by Sp. Bate as *M. gryllotalpa*, and formerly recorded by the same author as *Lembos danmoniensis*. In the plate, therefore, it is noted as a new species, with the name *M. propinqvus*. In addition to its greatly inferior size, it may be distinguished from the preceding species by the comparatively small accessory appendage of the superior antennæ, which is only composed of 2 articulations (Sp. Bate describes it as uniarticulate), and also by the somewhat different shape of the anterior gnathopoda in the male.

Occurrence. — The species would seem to have a similar distribution along the coasts of Norway as the preceding form; but I have, in every instance, found it only in very shallow water, and especially on a bottom composed of fine muddy sand, partly overgrown with grass.

Distribution. — British Isles (Sp. Bate).

3. **Microdeutopus gryllotalpa**, Costa.

(Pl. 192, fig. 2).

Microdeutopus gryllotalpa, Costa, Rend. della Reale Acad. delle Sc. di Napoli, p. 178.

Syn: Antonoë grandimana, Bruzelius.

Body comparatively somewhat less slender than in the 2 preceding species, but otherwise of a very similar appearance. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners deflexed and narrowly rounded at the tip. Coxal plates scarcely as deep as the corresponding segments, 1st pair in male somewhat more produced anteriorly than in female, though not nearly to such a degree as in the 2 preceding species. Epimeral plates of metasome about as in *M. danmoniensis.* Eyes small, rounded, pigment dark. Superior antennæ considerably exceeding half the length of the body, peduncle of the usual structure, flagellum half as long again as the peduncle, and composed of about 20 articulations, accessory appendage extremely small and uniarticulate. Gnathopoda in female nearly as in *M. danmoniensis.* Anterior gnathopoda in male enormously developed, with the carpus extremely large and massive, broadly oval in form, and forming below 3 strong dentiform projections, the outmost of which is the largest, propodos scarcely more than half as long as the carpus, and much narrower, with the lower edge irregularly sinuated, forming 2 rounded projections, the outer of which is the broader and slightly bilobed, dactylus strong and dentated inside. Posterior gnathopoda in male considerably larger than in female, with the basal joint much expanded, subfusiform in outline, and having the anterior edge crenulated, propodos about the length of the carpus and very narrow, sublinear. Pereiopoda and uropoda about as in *M. danmoniensis.* Telson of the usual structure. Body densely variegated with a dark brownish pigment. Length of adult male 6 mm.

Remarks. — This species was first described by Costa from the gulf of Naples, and is the form upon which he founded his genus *Microdeutopus.* As first pointed out by Boeck, the *Autonoë grandimana* of Bruzelius is undoubtedly the same species. It is easily distinguishable from the 2 preceding species by the very small, uniarticulate accessory appendage of the superior antennæ, and by the peculiar shape of the anterior gnathopoda in the male.

Occurrence. — I have met with this form in the Christianiafjord, as also in a few localities of the south coast of Norway, in comparatively shallow water. According to Boeck, it also occurs at Haugesund, west coast of Norway.

Distribution. — Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux), Mediterranean (Costa), Adriatic (Heller).

Gen. 2. **Aora,** Krøyer, 1844.

Syn.: Lalaria Nicolet.
» Lonchomeres, Sp. Bate.
» Autonoë, Bruzelius (part).

Form of body about as in the preceding genus; anterior pairs of coxal plates, however, somewhat deeper, 1st pair slightly angular in front, but scarcely produced to any true projection. Eyes small, but distinct. Superior antennæ slender and much longer than the inferior, accessory appendage well developed. Oral parts nearly as in the genus *Microdeutopus.* Gnathopoda in female likewise of a structure very similar to those in that genus. Anterior gnathopoda in male, however, rather different, being very much elongated, with the meral joint produced in front to a strong spiniform process, carpus not at all expanded, and scarcely broader than the propodos. Pereiopoda, uropoda and telson nearly as in the genus *Microdeutopus.*

Remarks. — The present genus was established in the year 1844 by Krøyer, to include a South-American species, *A. typica.* It is very nearly allied to the preceding genus, the only essential distinguishing characteristic being the rather different structure of the anterior gnathopoda in the male. The genera *Lalaria* of Nicolet and *Lonchomeres* of Sp. Bate are identical with the present genus. Besides the type species described by Krøyer, and the northern form described below, the Rev. Mr. Stebbing has added 2 new species from the Challenger Expedition. The genus thus at present comprises 4 species.

4. **Aora gracilis**, Sp, Bate.

(Pl. 191).

Lonchomeres gracilis, Sp. Bate, Brit. Assoc. Report 1855, p. 58.

Syn.: Lalaria gracilis, Sp. Bate.
» Autonoë punctata, Bruzelius.

Body rather slender, nearly cylindric, with broadly rounded back. Cephalon not quite as long as the first 2 segments of mesosome combined, lateral corners obliquely rounded, postantennal ones well defined. Anterior pairs of coxal plates somewhat deeper than the corresponding segments, 1st pair in female scarcely widening distally, in male much larger, and obliquely expanded, 4th pair in female obliquely truncated at the tip, 5th pair with the anterior lobe somewhat deeper than the posterior, and evenly rounded. Last pair of epimeral plates of metasome nearly rectangular. Eyes small, rounded oval, pigment black with a whitish coating. Superior antennæ very slender, equalling $^2/_3$ of the length of the body, 2nd joint of the peduncle the longest, flagellum twice the length of the peduncle, and composed of 20—30 articulations, accessory appendage well developed, fully twice as long as the last peduncular joint, and composed of 5 articulations, the last of which is very small. Inferior antennæ scarcely more than half as long as the superior, the last 2 joints of the peduncle about equal-sized, flagellum scarcely longer than the last peduncular joint. Anterior gnathopoda in female with the propodos nearly twice as long as the carpus, and slightly expanded distally, palm oblique and not distinctly defined. Posterior gnathopoda somewhat more feeble in structure, with the propodos but little longer than the carpus, and less expanded distally. Anterior gnathopoda in male very large and elongated, attaining, when fully extended, half the length of the body, meral projection mucroniform, and extending beyond the carpus, the latter of nearly equal breadth throughout, propodos a little shorter than the carpus and narrow oblong in form, without any distinct palm, dactylus very large and compressed, impinging, when closed, against the lower face of the meral process. Posterior gnathopoda of same structure as in the female, but somewhat larger. The 3 posterior pairs of pereiopoda rapidly increasing in length, last pair very much elongated, considerably exceeding half the length of the body, and rather densely setiferous, basal joint in female oblong oval, in male angularly produced posteriorly, below the middle. Last pair of uropoda with the rami equal-sized, and nearly twice as long as the basal part, each having a few lateral spines and an apicial fascicle of somewhat more slender spinules. Telson rounded, nearly as broad as it is long, tip obtusely angular, with 2 unequal spines on either side. Body whitish, more or less densely mottled with brownish pigmentary spots. Length of adult female attaining 8 mm, of male about the same.

Remarks. — This form was first described (in the male sex) by Sp. Bate as *Lonchomeres gracilis,* and was subsequently referred by that author to the genus *Lalaria* of Nicolet. In his more recent works he records it under the name here used. The *Autonoë punctata* of Bruzelius is undoubtedly identical with the present species. From the type species, *Aora typica* of Krøyer, it would seem to differ by the much more slender form of its body. In the male sex, this form is easily recognizable by the peculiar structure of the anterior gnathopoda. The female is, on the other hand, very like the females of the genera *Microdeutopus* and *Autonoë*, and cannot therefore, without 30 fathoms. It a closer examination, be distinguished from them.

Occurrence. — Along the whole south and west coasts of Norway, this form is rather frequently met with in moderate depths, varying from 3 to also occurs in the Trondhjemsfjord.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat Meinert), Dutch coast (Hoek), coast of France (Chevreux), Azores (Chevreux).

Gen. 3. Autonoë, Bruzelius, 1859.

Syn: Lembos, Sp. Bate (part).
» Microdeutopus, Sp. Bate (part).

Form of body about as in the 2 preceding genera. Coxal plates rather small, 1st pair more or less produced in the male. Eyes distinct, or imperfectly developed. Superior antennæ longer than the inferior, and provided with a well-developed accessory appendage. Oral parts scarcely differing from those in the 2 preceding genera. Gnathopoda rather unequal, the anterior ones being considerably stronger than the posterior, and in male very powerfully developed, with the carpus rather thick, though not produced in front, propodos fully as broad as the carpus, and having the palm divided into spiniform projections. Both pairs of gnathopoda in male, (sometimes also the 1st pair of pereiopoda), clothed, especially along the anterior edge, with a dense crowd of slender bristles. Pereiopoda, uropoda and telson of the usual structure.

Remarks — In the restriction now generally adopted, this genus is chiefly distinguished by the structure of the anterior gnathopoda in the male, and by the dense supply of bristles clothing both this and the succeeding pair in the same sex. Otherwise it is very nearly allied to the 2 preceding genera, and Bruzelius originally comprised within it also the species of those genera. *Gammarus tenuis* of Dana may perhaps be referred to this genus. Two other exotic species have been added by the Rev. Mr. Stebbing from the Challenger Expedition. To the fauna of Norway belong 3 species, to be described below.

5. **Autonoë Websteri,** (Sp. Bate).

(Pl. 194.)

Lembos Websteri, Sp. Bate, Ann. Nat. Hist. 1857, p. 142.

Syn: Microdeutopus Websteri, Sp. Bate.

Body somewhat strongly built, and rather tumid in the female, with broadly rounded back. Cephalon shorter than the first 2 segments of mesosome combined, lateral corners obliquely deflexed and narrowly rounded at the tip. Anterior pairs of coxal plates scarcely as deep as the corresponding segments, 1st pair in female subrhomboidal, in male considerably larger, and produced in front to an acuminate projection extending beyond the postantennal corners, the succeeding pairs about as in *Microdeutopus*. Last pair of epimeral plates of metasome rounded at the lateral corners. Eyes distinct, though very small, and rounded oval in form, pigment dark. Superior antennæ somewhat exceeding half the length of the body, 2nd joint a little longer and much narrower than the 1st, flagellum exceeding in length the peduncle, and composed of about 15 articulations, accessory appendage rather fully developed, being considerably longer than the last peduncular joint, and consisting of 5 articulations, the last of which is very small. Inferior antennæ somewhat exceeding half the length of the superior, and of the usual structure. Anterior gnathopoda in female rather strong, with the propodos much larger than the carpus and oblong oval in form, being scarcely at all expanded distally, palm imperfectly defined, dactylus of moderate size and denticulated inside. Posterior gnathopoda much smaller than the anterior, with the propodos scarcely longer than the carpus, and nearly transversely truncated at the tip. Anterior gnathopoda in male extremely large and powerful, with the outer part densely setous on both edges, carpus rather thick, with the upper face boldly curved and clothed all over with numerous very slender and diverging bristles springing from small tubercles, propodos oval in form, and about same size as the carpus, likewise having the upper face densely clothed with diverging bristles, palm comparatively short, and divided into two strong dentiform projections, the lower of which is the larger, and having at its base a small spinule, dactylus of moderate size, and minutely denticulated inside. Posterior gnathopoda in male of a structure similar to that in the female, though comparatively larger, and having both the carpus and propodos densely clothed with bristles, especially along the upper face. Last pair of pereiopoda equalling about half the length of the body, basal joint oblong oval in form. Last pair of uropoda with the rami subequal, and about the length of the basal part. Telson rounded oval in form, with 3 spines on either side of the somewhat angular tip. Body whitish, mottled with small specks of a dark brown pigment, forming more or less distinct, narrow bands across the segments and coxal plates. Length of adult female 5 mm, of male 6 mm.

Remarks. — This form was at first described by Sp. Bate as *Lembos Websteri,* and was subsequently referred by him to the genus *Microdeutopus.* It is, however, a true *Autonoë* in the restriction of the genus adopted by Boeck. I have myself formerly erroneously identified it with *Gammarus longipes* of Lilljeborg. From the latter it is easily distinguishable by its much more robust form of body, by the more fully developed accessory appendage of the superior antennæ, by the structure of the gnathopoda in the two sexes, and finally, by the rather different colour of the body.

Occurrence. — I have met with this species in several localities ot the south and west coasts of Norway, though nowhere in any abundance. It is generally found in comparatively shallow water, together with *Microdeutopus danmoniensis* and *gryllotalpa.*

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux).

6. **Autonoë longipes,** (Lilljeborg).

(Pl. 195, fig. 1.)

Gammarus longipes, Lilljeborg. Øfvers. af Kgl. Svenska Vet. Akad. Förhandl. 1852, p. 10.

Syn: Microdeutopus longipes, Sp. Bate.
» Autonoë plumosa, Boeck.

Body considerably more slender than in the preceding species, and nearly cylindric in form, otherwise of a very similar appearance. First pair of coxal plates in male not nearly so much produced in front as in the male of *A. Websteri.* Eyes small, rounded, pigment black. Superior antennæ about equalling in length ²/₃ of the body, 2nd joint of the peduncle much longer than the 1st, flagellum somewhat longer than the peduncle, and composed of about 18 articulations, accessory appendage scarcely longer than the last peduncular joint, and 3-articulate. Inferior antennæ of the usual structure. Anterior gnathopoda in female less strongly built than in the preceding species, propodos somewhat longer than the carpus, and gradually widening distally, palm rather oblique, and defined below by an obtuse angle carrying a slender spine. Posterior gnathopoda scarcely shorter than the anterior, but somewhat more slender, propodos about the length of the carpus, and very little expanded distally, palm nearly transverse. Anterior gnathopoda in male rather large, with the basal joint much expanded, and clothed at the infero-posteal corner by a dense brush of long and slender bristles curving anteriorly, carpus setous only in the outer part of its upper face, propodos exceeding the carpus in length, and oblong oval in form, with the upper face setous throughout, palm somewhat oblique, and, as in the preceding species, divided into 2 dentiform projections, the inferior of which is the larger. Posterior gnathopoda in male much larger than in female, and nearly as long as the anterior, though not nearly so strongly built, carpus and propodos densely clothed with slender bristles along their upper face. Last pair of pereiopoda very slender and elongated, exceeding half the length of the body. Last pair of uropoda with the rami nearly twice as long as the basal part, and subequal. Telson rounded oval, outer part somewhat tapering. Body whitish, with light reddish bands across the segments, but without any pigmentary specks. Length of adult male nearly 12 mm.

Remarks. — There cannot be any doubt that this is the form originally recorded by Prof. Lilljeborg as *Gammarus longipes*, and subsequently described and figured by Bruzelius under the above name. The *Autonoë plumosa* of

Boeck is only founded upon adult males of the present species. From *A. Websteri* it may be easily distinguished by its more slender form of body, the smaller accessory appendage of the superior antennæ, and the structure of the gnathopoda in the two sexes. Moreover the superior antennæ, as also the last pair of pereiopoda, are comparatively more elongated, and the colour of the body rather different.

Occurrence. — This species is met with much more frequently than the preceding one, and occurs along the whole south and west coasts of Norway, at least to the Trondhjemsfjord, in depths varying from 10 to 50 fathoms, muddy bottom.

Distribution. — Bohuslän (Bruzelius), Kattegat (Meinert), the Kara Sea (Hansen).

7. **Autonoë megacheir**, G. O. Sars.

(Pl. 195, fig. 2).

Autonoë megacheir, G. O. Sars, Crust. & Pycnog. nova Exped. Norv. No. 35.

Body rather slender, and somewhat resembling in form that of *A. longipes.* Cephalon nearly as long as the first 2 segments of mesosome combined, lateral corners, as usual, obliquely rounded. First pair of coxal plates in female somewhat angular, in male produced anteriorly to a rather long acuminate projection. Last pair of epimeral plates of metasome somewhat more produced at the lateral corners than in the other species, and nearly rectangular. Eyes wanting, being replaced on each side by a small patch of whitish pigment, without any trace of visual elements. Superior antennæ very slender and elongated, nearly attaining the length of the whole body, 2nd joint of the peduncle, as usual, considerably longer and narrower than the 1st, flagellum nearly twice the length of the peduncle, and composed of about 20 articulations, accessory appendage longer than the last peduncular joint, and 4-articulate. Inferior antennæ scarcely more than half the length of the superior, and of the usual structure. Anterior gnathopoda in female rather strong, with the propodos oblong oval in form, and about the length of the 2 preceding joints combined, dactylus of moderate size, and quite smooth. Posterior gnathopoda much smaller, and resembling those in *A. longipes.* Anterior gnathopoda in male very powerfully developed, basal joint moderately expanded, and having at the infero-posteal corner a dense tuft of comparatively short bristles, the 3 succeeding joints densely setous only along their lower side, propodos but slightly setous, but rather large and expanded, exceeding in length the carpus, palm angularly produced in the middle, and defined below by a strong acuminate projection. Posterior gnathopoda in male, as usual, larger than in female, and having the carpus and propodos densely clothed with bristles along their upper face. First pair of pereiopoda in male with the carpus densely setous inside. Last pair of pereiopoda in both sexes very much elongated, considerably exceeding half the length of the body. Last pair of uropoda with the inner ramus somewhat larger than the outer. Telson of the usual shape. Body uniformly yellowish in colour, without any pigmentary ornament. Length of adult male 8 mm.

Remarks. — The present species was detected, — a single male specimen, — during the Norwegian North Atlantic Expedition, and is described and figured by the author in the account of the Crustacea of that Expedition. It is easily distinguished from any of the other known species by the want of true eyes, as also by the shape of the gnathopoda, and by the 1st pair of pereiopoda in the male being provided with a dense clothing of bristles similar to that on the posterior gnathopoda.

Occurrence. — In later years I have met with this form in several localities of the Norwegian coast, from the Stavangerfjord up to Hasvig in west Finmark. It is only found in considerable depths, varying from 50 to 300 fathoms.

Distribution. — Stat. 195 of the Norwegian North Atlantic Expedition, located N W of Finmark.

Gen. 4. **Protomedeia,** Krøyer, 1842.

Syn: Autonoë, Bruzelius (part).
» Microdeutopus, Sp. Bate (part).

Body comparatively slender, with the coxal plates rather small, 4th pair not differing in shape from the preceding pair; 5th pair with the anterior lobe rather deep, especially in the male. Cephalon rather small, with the frontal part somewhat produced. Eyes small, but distinct. Superior antennæ longer than the inferior, and provided with a well-developed accessory appendage. Oral parts normal, except that the terminal joint of the mandibular palp is densely setous, and that the palp of the 1st pair of maxillæ is transversely truncated at the tip. Gnathopoda in female rather slender and densely setous, the posterior ones being somewhat larger than the anterior, and having the basal joint fringed on both edges with long ciliated setæ. Posterior gnathopoda in male very strongly built, with the carpus much tumefied. The 2 anterior pairs of pereiopoda, but especially the 1st pair, densely setous, with the propodal joint very narrow and conically tapering. The 3 posterior pairs of pereiopoda successively increasing in length, and having the basal joint rather expanded. Uropoda comparatively strongly built; last pair rather short and stout, with the rami somewhat unequal and strongly spinulose. Telson rounded.

Remarks. — This genus established in the year 1842 by Krøyer, is chiefly distinguished from the preceding genera by the different mutual relation of the gnathopoda, the posterior ones being the larger, and in male very strongly built. It comprises as yet but a single species, to be described below.

8. **Protomedeia fasciata**, Krøyer.

(Pl. 196.]

Protomedeia fasciata, Krøyer, Nat. Tidsskr. IV, p. 154.

Syn.: Gammarus macronyx, Lilljeborg.
» Antonoë macronyx, Bruzzelius.
» Microdeutopus macronyx, Sp. Bate.

Body rather slender, but scarcely compressed, the back being broadly rounded; 2nd segment of mesosome in male much larger than in female. Cephalon somewhat attenuated in front, with the lateral corners but little projecting, and angular anteriorly, postantennal ones well defined. Anterior pairs of coxal plates in female scarcely as deep as the corresponding segments, 1st pair subrhomboidal in form, and densely fringed with bristles, being somewhat more expanded in male, 2nd pair in female of same shape as the 2 succeding pairs, in male rather broad and having the distal edge strongly curved, 5th pair in female with the anterior lobe evenly rounded, and but little deeper than the preceding pair, in male of a rather different form, having the anterior lobe very deep, and subtruncated at the tip. Last pair of epimeral plates of metasome rounded at the lateral corners. Eyes very small, rounded oval, with black pigment. Superior antennæ scarcely exceeding half the length of the body, 2nd joint of the peduncle about the length of the 1st, but much narrower, flagellum not quite twice as long as the peduncle, and composed of about 14 articulations, accessory appendage twice the length of the last peduncular joint, and 5-articulate.

Inferior antennæ much shorter than the superior and more strongly built, with the flagellum scarcely longer than the last peduncular joint. Anterior gnathopoda in female with the basal joint simple, not expanded distally, propodos about the length of the carpus, and oblong oval in form, scarcely widening distally, palm rather short, dactylus slender; those in male somewhat larger than in female, and having the basal joint expanded at the infero-posteal corner to a rounded lobe, carpus exceeding the propodos in length. Posterior gnathopoda in female somewhat more elongated than the anterior, basal joint fringed on both edges with ciliated setæ, those of the anterior edge being very much elongated, propodos somewhat longer than the carpus, and slightly tapering distally, with the palm very short, and the dactylus small; those in male very powerfully developed, with the carpus much tumefied, and having the upper face boldly curved, propodos somewhat shorter than the carpus and oval in form, with the lower edge divided into several strong serrations having between them fascicles of slender bristles, dactylus rather strong. The 2 anterior pairs of pereiopoda with the meral joint rather large, equalling in length the 2 outer joints combined, and, especially in the 1st pair, densely setous, basal joint in the latter pair fringed with long ciliated setæ in a similar manner to that of the posterior gnathopoda. Last pair of pereiopoda not nearly attaining half the length of the body, basal joint oblong oval, with the posterior edge setiferous. Last pair of uropoda with the inner ramus considerably shorter than the outer, both armed with several strong spines, the outer one, in addition, being tipped with a slender bristle. Telson broader than it is long, and armed on either side of the obtusely truncated tip with 3 slender spines. Body whitish, with very distinct dark brown bands across the segments and coxal plates. Length of adult female 8 mm, of male about the same.

Remarks. — The present form was first described by Krøyer, under the above name, from Greenlandic specimens. It was subsequently recorded by Prof. Lilljeborg from the Swedish coast under another name, viz, *Gammarus macronyx,* and by Bruzelius as *Autonoë macronyx.* Boeck erroneously identified *Microdeutopus Websteri* of Sp. Bate with this form. It is easily recognized from the other *Photidæ* both in the female and male sexes, in the former, by the dense supply of ciliated setæ on the basal joint of both the posterior gnathopoda and the 1st pair of pereiopoda, in the latter, by the peculiar structure of the posterior gnathopoda.

Occurrence. — Along the coast of Finmark this form is very frequently met with in moderate depths, from 6 to 30 fms. It is also found at the Lofoten Isles, and in several places on the Nordland coast Even in the Trondhjemsfjord, it is in some places very abundant, and, according to Boeck, it also occasionally occurs off the west coast of Norway, for instance at Aalesund. Off the south coast and in the Christianiafjord I have, however, not yet met with it

Distribution. — Greenland (Krøyer), Spitsbergen (Goës), Iceland (Torell), Shetland Isles (Norman), Bohuslän (Bruzelius), Kattegat (Meinert).

Gen. 5. **Leptocheirus,** Zaddach, 1844.

Syn.: Ptilocheirus, Stimpson.
» Protomedeia, Sp. Bate (part).
» Boeckia, Malm.

Body, as a rule, less slender than in the preceding genus, with the urosome rather strongly built. Anterior pairs of coxal plates comparatively deep; 1st pair however, poorly developed, and quite concealed by the greatly expanded 2nd pair; 5th pair with the anterior lobe much deeper than the posterior. Eyes distinct, though small. Antennæ of moderate length, the superior ones the longer, and provided with a well-developed accessory appendage. Anterior lip subquadrangular in form; posterior lip with the inner lobes partly fused together, and the outer ones rather broad. Mandibles and maxillæ normal. Maxillipeds comparatively large, with the basal and masticatory lobes rather narrow, the latter edged inside and at the tip with slender setiform spines, palp slender, with the penultimate joint very much elongated. Gnathopoda somewhat unequal in structure; the anterior ones distinctly subcheliform, and having the ischial joint laminarly expanded; the posterior ones rather slender, and densely setiferous along their anterior edge, carpus very large, propodos short and conically tapering, without any distinct palm. The 2 anterior pairs of pereïopoda with the propodal joint unusually slender and elongated; the 3 posterior pairs rapidly increasing in length, and having the basal joint large and expanded. The 2 anterior pairs of uropoda very robust, and armed with strong unguiform spines; last pair comparatively small. Telson likewise rather small, and tubular.

Remarks. — This genus was established in the year 1844 by Zaddach, to include a curious Amphiphod found by him at the coast of Prussia. Stimpson's genus *Ptilocheirus* (1854) is undoubtedly the same, and this is also the case with the genus *Boeckia* of Malm. The generic name proposed by Zaddach is inconveniently near *Leptochirus*, which has been appropriated for an insect, but it may perhaps be retained. The genus was considered by Boeck to form the type of a separate subfamily *Leptocheirinæ,* comprising also the genus *Goësia* of that author. It is, however, undoubtedly nearly related to the genus *Protomedeia* of Krøyer, and cannot therefore properly be separated more than generically from the latter. The genus is chiefly distinguished by the form of the anterior pairs of coxal plates, the strongly built urosome, and the structure of the gnathopoda. Besides the typical species and that described by Stimpson as *Ptilocheirus pinguis,* the *Protomedeia guttata* of Grube and the *Protomedeia pectinata* of Norman belong to this genus, and M. Chevreux has recently described another species from the French coast as *Ptilocheirus tricristatus.* To the fauna of Norway belongs but a single species, to be described below.

9. **Leptocheirus pilosus,** Zaddach.

(Pl. 197).

Leptocheirus pilosus, Zaddach, Synopsis, Crust. Prussic. p. 8.

Syn.: Protomedeia pilosa, Sp. Bate.
» Protomodeia hirsutimana, Sp. Bate.
» Boeckia typica, Malm.
» Ptilocheirus hirsutimanus, Chevreux.
» Ptilocheirus pilosus, Meinert.

Body rather stout and somewhat compressed, though the back is broadly rounded; urosome very strongly built, and quite smooth above. Cephalon fully as long as the first 2 segments of mesosome combined, and somewhat attenuated in front, with the lateral corners very small and rounded. First pair of coxal plates extremely small and quadrangular in form, with the anterior corner somewhat produced; 2nd pair very large and broad, being greatly expanded distally, so as completely to conceal the 1st pair, their rounded anterior corner advancing even beyond the postantennal corner of the cephalon, distal edge gently curved and setiferous. The 2 succeeding pairs oblong quadrangular in form, and nearly twice as deep as the corresponding segments; 5th pair with the anterior lobe very deep and linguiform; the 2 posterior pairs small. Last pair of epimeral plates of metasome forming at the lateral corners a rounded lobe slightly crenulated at the edge. Eyes small, rounded, pigment dark. Superior antennæ not nearly attaining half the length of the body, 1st joint of the peduncle a little longer and much thicker than the 2nd, flagellum slightly exceeding the peduncle in length, and composed of about 16 articulations, accessory appendage very fully developed, attaining about half the length of the peduncle, and 6-articulate. Inferior antennæ somewhat shorter than the superior, the last 2 joints of the peduncle of nearly equal length, flagellum shorter than those joints combined. Anterior gnathopoda (in female) rather slender, with the basal joint somewhat expanded, and densely fringed anteriorly with comparatively short bristles, ischial joint expanded posteriorly to a rounded, densely hispid lobe, propodos about the length of the carpus and scarcely broader, with the palm somewhat oblique, and defined below by an obtuse angle, dactylus of moderate length. Posterior gnathopoda more elongated than the anterior, basal joint laminarly compressed, and narrow subfusiform in outline, with the anterior edge clothed by a double row of very long ciliated setæ, carpus much elongated, and connected with the propodos by an oblique articulation, propodos scarcely half the length of the carpus, and gradually tapering distally, dactylus comparatively small. The 2 anterior pairs of pereiopoda with the basal joint somewhat laminar and quite smooth, meral joint widening distally, and about the length of the carpal joint, propodal joint extremely narrow, and much longer than the carpal one, dactylus scarcely more than $^1/_3$ as long as the former, and very slender. Antepenultimate pair of pereiopoda comparatively stout, with the basal joint irregularly oval in form, its anterior edge being gently curved, the posterior one slightly sinuated and somewhat expanded at the base, propodal joint shorter than the carpal one, dactylus extremely small. Last pair of pereiopoda very much elongated, equalling in length $^2/_3$ of the body, basal joint oblong oval in form, and, like that of the 2 preceding pairs, having the posterior edge densely fringed with ciliated setæ, propodal joint much elongated and armed along the anterior edge with a row of short spines, dactylus small, bidentate at the tip. The 2 anterior pairs of uropoda unusually strong, 1st pair with the basal part produced at the end anteriorly to a strong spiniform process; 2nd pair with the basal part short and broad, rami extremely stout, and each armed with a double row of very strong blunt spines; last pair very small, rami somewhat longer than the basal part, and conically tapering, each being provided, in addition to the spines, with several slender bristles. Telson short and broad, somewhat angular on each side of the tip, and having just within the angle a slender spine. Colour in the living state of the animal not yet stated. Length of adult female 8 mm.

Remarks. — The present form was first described in the year 1844 by Zaddach as the type of his genus *Leptocheirus*. The same form has subsequently been recorded under 2 other names, viz, by Sp. Bate as *Protomedeia hirsutimana,* and by Malm as *Boeckia typica*. It may be easily recognized from our other *Photidæ* by the great development of the 2nd pair of coxal plates, the unusually strong build of the urosome, and by the structure of the gnathopoda and pereiopoda.

Occurrence. — I have not myself met with this form, but it is stated by Boeck to occur in the Christianiafjord. The figures here given are from French specimens kindly sent me by M. Chevreux.

Distribution. — British Isles (Sp. Bate), Bohuslän (Malm), Kattegat (Meinert), Baltic (Zaddach), coast of France (Chevreux), Adriatic (Grube).

Gen. 6. **Gammaropsis,** Lilljeborg, 1854.

Syn: Eurystheus, Sp. Bate.
» Autonoë, Bruzelius (part).

Body slender, with the coxal plates of moderate size; 4th pair of same shape as the preceding pair; 5th pair with the anterior lobe deeper than the posterior. Cephalon with the frontal part somewhat projecting, lateral corners more or less produced, postantennal ones well defined, and far behind the former. Eyes well developed and rather large. Antennæ slender, nearly equal in length, and fringed posteriorly with fascicles of slender bristles, the superior ones with the last joint of the peduncle much elongated, and the accessory appendage distinctly developed. Anterior lip more or less produced in front. Mandibular palp very large, with the terminal joint lamellarly compressed, and clothed with numerous very long bristles. Oral parts otherwise normal. Gnathopoda more or less unequal, the anterior ones being rather feeble, and of the very same structure in the two sexes, the posterior ones, as a rule, considerably larger, and in male much more strongly built than in female. The 2 anterior pairs of pereiopoda normal; the 3 posterior pairs moderately elongated, and having the basal joint more or less expanded; the last 2 pairs about equal in length. Last pair of uropoda of moderate size, with the basal part somewhat elongated, and the rami narrow linear. Telson not very large, rounded.

Remarks. — The present genus, established by Prof. Lilljeborg, is chiefly distinguished from the preceding genera by the comparatively large size of the eyes, the subequal and densely setiferous antennæ, the peduncles of which are very much elongated in proportion to the flagella, the unusually elongated mandibular palps, and finally, by the structure of the gnathopoda in the two sexes, and by that of the last pair of uropoda. The genus *Eurystheus* of Sp. Bate is identical with this genus. It comprises 3 Norwegian species, to be described below, one of which is now for the first time established. The Rev. Mr. Stebbing has also added 4 new species from the Challenger Expedition.

10. **Gammaropsis erythrophthalma**, Lilljeborg.

(Pl. 198).

Gammarus (Gammaropsis) erythrophthalmus, Lilljeborg, Kongl. Svenska Vet. Akad. Handl. 1854, p. 455.

Syn.: Eurystheus tridentatus, Sp Bate.
» Autonoë erythrophthalma, Bruzelius.
» Eurystheus erythrophthalmus, Sp. Bate.

Body moderately slender and somewhat compressed, with evenly rounded back. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners terminating in an acute angle. First pair of coxal plates rather small, and rounded quadrangular in form; the 3 succeeding pairs a little deeper than the corresponding segments, 2nd pair in male being the largest; 5th pair with the anterior lobe scarcely as deep as the preceding pair, and evenly rounded. Last pair of epimeral plates of metasome produced at the lateral corners to a small dentiform projection, posterior edge but slightly curved. Eyes rather large, oval reniform, with bright red pigment. Superior antennæ considerably exceeding half the length of the body, 2nd joint of the peduncle the longest, 3rd joint about the length of the 1st, flagellum not attaining the length of the peduncle, and composed of about 15 articulations, accessory appendage rather fully developed, exceeding in length the last peduncular joint, and 6-articulate. Inferior antennæ a little shorter than the superior, with the flagellum somewhat exceeding half the length of the peduncle. Both pairs of antennæ clothed posteriorly with fascicles of rather long bristles. Anterior lip produced in front to an obtusely conical projection. Anterior gnathopoda with the carpus slightly expanded in the middle, being subfusiform in outline, propodos about same length, and nearly triangular in form, with the palm rather oblique, and about the length of the hind margin, dactylus very slender. Posterior gnathopoda in female much stronger than the anterior, with the propodos rather large, about twice the length of the carpus, and oblong oval in form, palm very oblique, and defined below by a very slight angle carrying a slender spine, its edge minutely serrulate, and produced in the middle to

2 acute projections, dactylus rather strong; those in male much more strongly built, with all the joints considerably thickened, propodos but little longer than the carpus, and having the palm somewhat concave, and defined below by a well-marked angular projection, in addition to the 2 median ones, dactylus very strong and curved. The 3 posterior pairs of pereiopoda with the basal joint rather large and laminar, that of the antepenultimate pair somewhat broader than in the 2 succeeding pairs. Last pair of uropoda with the rami scarcely longer than the basal part, and somewhat tapering distally, each bordered by a number of short spines. Telson about as broad as it is long, and slightly tapering distally, with a strong spine accompanied by a few hairs on either side of the angular tip. Colour, according to Sp. Bate, pale yellow, with a reddish blotch (the transclucent intestine?) anteriorly. Length of adult female 8 mm, of male about the same.

Remarks. — This form was first described by Prof. Lilljeborg under the above name, and was subsequently referred by Bruzelius to his genus *Autonoë*. Sp. Bate at first recorded it as *Eurystheus tridentatus,* but subsequently, recognizing its identity with Lilljeborg's species, named it *Eurystheus erythrophthalmus.* It would seem that none of these authors have been aware, that Prof. Lilljeborg had already proposed a generic name for that division of the genus Gammarus, in which this species was comprised. As stated by the author in another place, the *Gammaropsis erythrophthalma* of Boeck is not identical with this, but with the succeeding species. From the latter it is easily distinguished, not only by the bright red pigment of the eyes, but also by several other well-marked characteristics.

Occurrence. — I have met with this form occasionally in several places on the south and west coasts of Norway, in depths varying from 20 to 50 fathoms. In the Trondhjemsfjord I have not yet found it, nor yet in any place lying farther north.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux), Azores (Barrois).

11. **Gammaropsis melanops**, G. O. Sars.

(Pl. 199, fig 1).

Gammaropsis melanops, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 111, Pl. 6, fig. 5.

Syn.: Gammaropsis erythrophthalma, Boeck (not Lilljeborg).

Body comparatively somewhat more slender than in the preceding species. Cephalon exceeding in length the first 2 segments of mesosome combined, lateral corners terminating in a sharp, somewhat deflexed point. Anterior pairs of coxal plates in female scarcely deeper than the corresponding segments, 1st pair rather small, 2nd pair in male the largest, 5th pair with the anterior lobe evenly rounded, and not quite as deep as the preceding pair. Last pair of epimeral plates of metasome produced at the lateral corners to a small dentiform projection defined above by a distinct sinus, posterior edge boldly curved in its inferior part. Eyes rather large, oval reniform, pigment very dark. Superior antennæ exceeding half the length of the body, 1st joint of the peduncle much shorter than the 2nd, 3rd exceeding in length the 1st, flagellum not attaining the length of the last 2 joints of the peduncle combined, and composed of about 10 articulations, accessory appendage very slender, and about $^1/_3$ as long as the flagellum, being composed of 4 articulations. Inferior antennæ a little shorter than the superior, with the flagellum about half the length of the peduncle. Both pairs of antennæ, as in the preceding species, provided posteriorly with fascicles of slender bristles. Anterior lip produced in front to a strong spiniform projection. Anterior gnathopoda rather feeble, carpus gradually widening distally, and densely setous below, propodos scarcely longer than the carpus, and oval in form, palm longer than the hind margin, dactylus slender and distinctly dentate inside. Posterior gnathopoda in female not nearly so strong as in the preceding species, though somewhat larger than the anterior ones, propodos but little longer than the carpus, and oblong in form, palm shorter than the hind margin, and slightly flexuous, with 2 strong spines below, dactylus of moderate size, and dentate inside; those in male, as usual, more strongly built, propodos somewhat longer than the carpus, and having the palm defined below by a distinct angle, in front of which occurs a strong spine, palmar edge smooth, and angularly produced above the middle. Pereiopoda much more slender than in the type species, basal joint of the 3 posterior pairs rather narrow, oblong in shape. Last pair of uropoda with the rami about the length of the basal part, and narrow linear in form. Telson small, subquadrangular in outline, forming on either side of the tip a distinct angle armed with a single spine. Body whitish, more or less mottled with a dark brown pigment, especially accumulated around the intestine, coxal plates, as a rule, without any pigment. Length of adult female 6 mm, of male about the same.

Remarks. — As above stated, this form was erroneously identified by Boeck with *G. erythrophthalma* of Lilljeborg, from which species it is at once distinguished by the dark pigment of the eyes. It also differs in the strong spiniform projection of the anterior lip, the form of the last pair of epimeral plates of metasome, and finally, in the structure of the gnathopoda and pereiopoda, as also in the colour of the body.

Occurrence. — Off the coast of Norway, this species is much more frequently found than the preceding one. I have met with it in numerous places both on the south and west coasts, as also in the Trondhjemsfjord, in moderate depths varying from 20 to 50 fathoms. It extends northwards along the Nordland coast up to Finmark, having been collected by Prof. Collett at Nordkap, and by myself at Mehavn and Vardø.

Distribution. — Kattegat (Meinert), Greenland (Hansen).

12. **Gammaropsis nana,** G. O. Sars, n. sp.

(Pl. 199, fig. 2).

Body moderately slender, and somewhat compressed. Cephalon fully as long as the first 2 segments of mesosome combined, lateral corners produced to a very sharp and straight point. Anterior pairs of coxal plates much deeper than the corresponding segments, and successively increasing in size to the 4th; 5th pair with the anterior lobe very deep, and obtusely truncated at the tip. Last pair of epimeral plates of metasome not acutely produced at the lateral corners, posterior edge slightly curved. Eyes comparatively large, and rounded in form, pigment dark brown. Antennæ less densely setiferous than in the 2 preceding species, the superior ones not nearly attaining half the length of the body, 1st joint of the peduncle comparatively short, 2nd a little longer than the 3rd, flagellum not attaining the length of those joints combined, and composed of only 5 or 6 articulations, accessory appendage shorter than the last peduncular joint and very narrow, consisting of 2 or 3 articulations, the last of which is very small. Inferior antennæ, as usual, a little shorter than the superior, and having the flagellum about half the length of the peduncle. Anterior lip but slightly produced in front. Anterior gnathopoda with the propodos somewhat longer than the carpus, and oval triangular in form, palm about the length of the hind margin, dactylus rather slender and perfectly smooth. Posterior gnathopoda in female not very large, and but little stronger than the anterior, propodos oblong oval in form, with the palm much shorter than the hind margin, and defined below by a distinct angle armed with a small spine, its edge minutely crenulated and slightly produced above the middle; those in male much stronger than in female, with the propodos very large and oval in form, palm nearly transverse and bisinuate, being angularly produced in the middle, and defined below by a rectangular projection, dactylus much longer than the palm, and impinging, when closed, against the inner face of the propodos. The 2 anterior pairs of pereiopoda comparatively stout, with the basal joint rather large; the 3 posterior pairs moderately slender, and having the basal joint somewhat expanded, that of the antepenultimate pair being the broadest. Last pair of uropoda with the rami shorter than the basal part, and mucroniform. Telson very small, rounded. Body whitish, with more or less distinct light brown bands across the segments and coxal plates. Length of adult female scarcely exceeding 3 mm.

Remarks. — This is a very distinct species, easily recognizable, not only by its very small size, but also by the greatly projecting lateral corners, the form of the eyes, the comparatively large coxal plates, the 5th of which exhibits a somewhat unusual shape by the great development of the anterior lobe, and finally, by the shape of the last pair of epimeral plates of the metasome. Moreover the several appendages exhibit, as shown by the above diagnosis, several well-marked distinguishing features. It would seem to be very nearly related to the form recently described by Messrs Stebbing & Robertson as *Podoceropsis palmata*, and may perhaps turn out to be the same species. There are however some differences, which at present prevent me from identifying both. Thus, to judge from the figure given, the coxal plates are not nearly so large as in the Norwegian form, being scarcely deeper than the corresponding segments, and also the shape of the gnathopoda (in male) appears to be somewhat different.

Occurrence. — I have only seen a few specimens of this form, which were collected last summer in the Christianiafjord, at Sandosund and Laurkullen, in a depth of about 20 fathoms, muddy bottom.

Gen. 7. **Megamphopus,** Norman, 1868.

Syn: Protomedeia, Boeck (part).

Body slender, with comparatively small coxal plates, the 2 anterior pairs of which are conspicuously modified in the male; 5th pair with the anterior lobe somewhat deeper than the posterior. Cephalon having the frontal part rather produced and attenuated. Eyes well developed. Antennæ not very much elongated, but extremely slender, the superior ones shorter than the inferior, and provided with a very small accessory appendage. Mandibular palps rather large, with the terminal joint comparatively short, but lamellarly expanded and densely setous. Oral parts otherwise normal. Gnathopoda in female rather feeble and subequal, being imperfectly subcheliform; in male both pairs, but especially the posterior one, greatly developed, with the carpus and propodos very large. The 2 anterior pairs of pereiopoda not very slender; the 3 posterior pairs rather elongated, with the basal joint moderately expanded. Last pair of uropoda with the rami somewhat unequal. Telson small, and of an appearance similar to that in the preceding genera.

Remarks. — The present genus was established in 1868 by the Rev. Mr. Norman, to include a peculiar Amphipode, of which only a single male specimen was procured. The same form was subsequently described by Boeck from the Norwegian coast as a species of the genus *Protomedeia* of Kroyer. Norman's genus ought, however, in my opinion, to be supported, as it can be pretty well defined from that of *Protomedeia,* apparently exhibiting in some points a closer affinity to the genus *Gammaropsis.* The longitudinal relation of the 2 pairs of antennæ, as also the structure of the gnathopoda in the two sexes, may especially serve for recognizing this genus. It comprises as yet but a single species, to be described below.

13. **Megamphopus cornutus,** Norman.

(Pl. 200).

Megamphopus cornutus, Norman, Last Report on Dredging among the Shetland Isles: Report of the Brit. Assoc. f. the Advanc. of Science, p. 282,

Syn: Protomedeia longimana, Boeck.

Body rather slender, though scarcely compressed, being somewhat tumid in the female. Cephalon exceeding in length the first 2 segments of mesosome combined, frontal part very much produced, lateral corners acutangular, postantennal ones far behind the latter. Anterior pairs of coxal plates in female about as deep as the corresponding segments, and rounded quadrangular in form; 5th pair with the anterior lobe nearly as deep as the preceding pair, and evenly rounded. Coxal plates in male somewhat differing from those in female; 1st pair produced in front to an acuminate projection, which is sometimes deflexed in the form of a horn; 2nd pair much larger than any of the others; the 2 succeeding pairs successively diminishing in size. Last pair of epimeral plates of metasome obtusely rounded at the lateral corners. Eyes rather large, oval in form, and placed on each side of the frontal part of the cephalon, pigment dark brown. Superior antennæ not nearly attaining half the length of the body, 1st joint of the peduncle comparatively short and thick, being about half as long as the cephalon, 2nd joint considerably longer and much narrower, 3rd joint about the length of the 1st, flagellum scarcely longer than the peduncle, and composed of about 8 articulations, accessory appendage extremely small and uniarticulate. Inferior antennæ somewhat longer than the superior, with the flagellum exceeding half the length of the peduncle. Both pairs of antennæ provided along their posterior edge with tufts of slender bristles. Anterior gnathopoda in female rather feeble, with the propodos about the length of the carpus, and slightly dilated in the middle, being oblong subfusiform in outline, dactylus rather slender. Posterior gnathopoda but little larger than the anterior, propodos oblong in form, and gradually tapering distally, without any distinct palm. Both pairs of gnathopoda in male much larger than in female, and rather elongated; the anterior ones having the carpus nearly as long as the basal joint, and provided below with several fascicles of bristles, and anteriorly with an obtuse dentiform projection, propodos shorter than the carpus, and oblong oval in form, lower edge armed with a series of spines, dactylus very large and compressed. Posterior gnathopoda in male considerably stronger than the anterior, with the basal joint abruptly curved at the base, propodos rather large, exceeding the carpus in length, and having below about 6 fascicles of bristles, in front of which occurs a small rounded projection, dactylus of a shape similar to that in the anterior pair. The 2 anterior pairs of pereiopoda rather strongly built; the 3 posterior pairs much more slender and successively increasing in length, basal joint oblong oval in form. Last pair of uropoda with the outer ramus shorter than the inner, both exceeding the basal part in length, and being armed with a number of small spinules. Telson subquadrangular in shape, somewhat broader than it is long, and exhibiting on either side of the slightly produced tip, a distinct angle armed with a slender spine. Body whitish, more or less densely mottled with red and brown pigmentary specks, often giving the body, especially of female, a very dark hue. Length of adult female but little exceeding 5 mm, of male about the same.

Remarks. — There cannot be any doubt that the *Protomedeia longimana* of Boeck is the form here described, and that first recorded by Norman under the above name. It may be observed, that both the generic and specific denominations refer only to the male sex, the former name indicating the strong development of both pairs of gnathopoda, the latter the anteriorly produced 1st pair of coxal plates; none of these characteristics being present in the female. The latter is however easily recognizable by the peculiar form of the cephalon, and the extremely thin and feeble antennæ. In the outer habitus, this form somewhat recalls the species of *Erichthonius* belonging to the next family.

Occurrence. — Off the south and west coasts of Norway this form is far from being rare, occurring in some places rather abundantly in depths varying from 6 to 30 fathoms. It also occurs in the Trondhjemsfjord, and extends, according to Boeck, northwards to the Lofoten Isles (Skraaven).

Distribution. — Shetland Isles (Norman), British Isles (Robertson), Kattegat (Meinert).

Gen. 8. Microprotopus, Norman, 1866.

Syn: Orthopalme, Hoek.

Body rather stout, with comparatively large coxal plates, the 5th of which have the anterior lobe very deep. Cephalon with the frontal part slightly produced, postantennal corners well marked. Eyes distinct, though small. Antennæ subequal and not much elongated, the superior ones with a small accessory appendage. Mandibular palps not very large, with the terminal joint comparatively short and setous at the tip. Oral parts otherwise normal. Gnathopoda rather unequal, the posterior ones being the larger, and in the male having the propodos of enormous size. Pereiopoda not very much elongated, the 3 posterior pairs generally strongly reflexed, and having the basal joint large and laminar, dactylus of antepenultimate pair inverted. Last pair of uropoda with only a single ramus, spinous at the tip. Telson small, subquadrangular in form.

Remarks. — This genus, established by Norman, is prominently distinguished by the enormous development of the propodos of the posterior gnathopoda in the male, as also by the last pair of uropoda being uni-ramous. Hoek's genus *Orthopalme* is unquestionably identical with that of Norman. The genus was associated by Boeck with the genera *Photis* and *Xenoclea* in his subfamily *Photinæ,* which is placed between the *Leptocheirinæ* and *Microdeutopinæ.* Hoek, as also M. Bonnier, is, on the other hand, inclined to place it among the *Podoceridæ,* on account of the structure of the uropoda and telson. It cannot indeed be denied, that the species both of this and the 2 succeeding genera exhibit some affinity to the *Podoceridæ,* and are most probably, like the latter, true domicolous forms; but in other respects they show a closer affinity to the preceding genera, and may therefore with equal reason be combined with the latter in one family. On the whole there is to be observed a very gradual transition from the *Photidæ* to the *Podoceridæ*, tending to efface the limit between these 2 families. Besides the northern form described below, another species has recently been described from the French coast as *M. longimanus.*

14. **Microprotopus maculatus**, Norman.

(Pl 201).

Microprotopus maculatus, Norman. Report Brit. Ass. 1866, p. 203.

Syn: Orthopalme Terschellingi, Hoek.

Body short and stout, with broadly rounded back, and the metasome and urosome comparatively poorly developed. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners nearly rectangular, with the lower edge gently curved. Anterior pairs of coxal plates more than twice as deep as the corresponding segments, and having the distal edge densely setiferous; 1st pair but little smaller than the succeeding ones, and evenly rounded at the tip, 2nd pair in male the largest, 5th pair with the anterior lobe very deep and linguiform. Last pair of epimeral plates of metasome forming at the lateral corners a broadly rounded lobe; slightly crenulated at the edge· Eyes small, rounded, with dark pigment. Superior antennæ about equalling in length $1/3$ of the body, 1st joint of the peduncle about the length of the 2nd, but considerably thicker, 3rd joint ocarcely more than half as long, flagellum but little longer than the peduncle, and composed of about 8 articulations, accessory appendage shorter than the last peduncular joint, and biarticulate, with the last articulation very small. Inferior antennæ a little shorter than the superior, and somewhat more robust, the last 2 joints of the peduncle about equal-sized, flagellum somewhat longer than the last peduncular joint. Anterior gnathopoda rather small, and of same structure in the 2 sexes, carpus somewhat elongated and but little expanded, propodos about the length of the latter, and oblong oval in form, slightly widening distally, palm shorter than the hind margin, and defined below by an obtuse angle. Posterior gnathopoda in female considerably stronger than the anterior, meral and carpal joints expanded below to densely setiferous lobes, the carpal one being rather produced and carrying long ciliated setæ, propodos of a shape similar to that in the anterior ones, but considerably larger, with the palm more distinctly defined below; those of male very largely developed, and, when fully extended, about half the length of the body, carpus very short, and produced below to a narrow setiferous projection, propodos of quite an enormous size, and oval quadrangular in form, with the upper edge gently curved, the lower one straight in the middle, and produced at the posterior and anterior corners to a strong dentiform projection, the anterior one being defined in front by an even sinus, dactylus extremely large and somewhat flexuous, impinging, when closed, against the posterior projection of the propodos. The 2 anterior pairs of pereiopoda not very much elongated, basal joint somewhat expanded, and nearly as long as the remaining part of the leg. The 3 posterior pairs of pereiopoda successively increasing in length, basal joint of the antepenultimate pair rather broad and obliquely rounded, that of the penultimate pair of a regular oval, that of last pair somewhat larger, and having the posterior edge strongly curved. Last pair of uropoda scarcely extending beyond the others, basal part somewhat expanded, terminal joint about same length and cylindrical in form, with 2 strong apical spines and a few slender bristles. Telson very small, somewhat broader than it is long, and transversely truncated at the tip, lateral corners dentiform projecting, and having inside 2 unequal spines. Body more or less densely mottled all over with dark pigmentary spots, giving the animal sometimes a blackish hue. Length of adult female 3 mm, of male about the same.

Remarks. — This form was first described by the Rev. Mr. Norman under the above name from British specimens, and was subsequently recorded by Boeck from the Norwegian coast. The *Orthopalme Terschellingi* of Hoek is undoubtedly the same species. On the other hand, that described by M. Bonnier as *Microprotopus maculatus* must be regarded as specifically distinct, differing, as it does, very conspicuously in the structure of the posterior gnathopoda both in the female and male sexes. It was originally described by M. Chevreux as *M. longimanus*, and ought to be maintained as a distinct species.

Occurrence. — I have met with this form in several places both on the south and west coasts of Norway, as far as to Bergen. It is generally found in comparatively shallow water, from 2 to 10 fathoms, sandy or muddy bottom.

Distribution. — British Isles (Norman), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux), Azores (Barrois).

Gen 9. **Photis,** Krøyer, 1842.

Syn: **Eiscladus,** Sp. Bate.

Body not very slender, but smooth, and more or less strongly curved, the urosome rather elongated and narrow. Cephalon with the frontal part somewhat produced, lateral corners more or less projecting between the 2 pairs of antennæ, postantennal corners well marked. Anterior pairs of coxal plates comparatively large and closely contiguous; 5th pair scarcely smaller than the preceding pairs, their anterior lobe being very strongly developed. Eyes small, placed near the extremities of the lateral corners of the cephalon. Antennæ subequal, and generally densely setiferous posteriorly, with the peduncles elongated, the superior ones without any accessory appendage. Mandibular palps rather elongated, with the terminal joint comparatively short and densely setous. Oral parts otherwise normal. Gnathopoda distinctly subscheliform, the posterior ones being somewhat larger than the anterior; both pairs in male, but especially the posterior ones, considerably more strongly built than in female. Pereiopoda not much elongated, antepenultimate pair rather stout and strongly reflexed, with the basal joint boldly curved anteriorly, and the dactylus inverted. Last pair of uropoda comparatively slender, extending beyond the others, basal part rather large and somewhat expanded at the base below, rami very unequal, the inner one being very minute, the outer one elongated and having a small terminal joint. Telson extremely small, triangular in form.

Remarks. — This genus was established by Krøyer as early as in the year 1842, to include an Arctic species *P. Reinhardi.* The genus *Eiscladus* of Sp. Bate is undoubtedly identical with that of Krøyer. It is a very distinct genus, exhibiting some features in common with the genus *Amphithoë* belonging to the next family. The smooth, generally boldly-curved body, the deep, closely contiguous coxal plates, the long and narrow urosome, and the unusually stout and strongly recurved antepenultimate pair of pereiopoda will serve for at once recognizing the genus. It comprises 3 northern species, all of which belong to the fauna of Norway, and will be described below. In addition to these, the Rev. Mr. Stebbing has added 2 new species from the Challenger Expedition.

15. **Photis Reinhardi**, Krøyer.

(Pl. 202).

Photis Reinhardi, Krøyer, Nat. Tidsskr. 1 R. Bd. IV, p. 155.

Syn: Amphithoë pygmæa, Lilljeborg.
» Amphithoë Reinhardi, Goës.

Body comparatively stout and rather deep, with broadly vaulted back. Cephalon not nearly attaining the length of the first 2 segments of mesosome combined, lateral corners not much produced, but angular at the tip, with the lower edge gently curved. Anterior pairs of coxal plates nearly twice as deep as the corresponding segments, and densely setiferous on the distal edge; 1st pair somewhat attenuated distally and obliquely rounded at the tip; the 2 succeeding pairs oblong quadrangular in form; 5th pair with the anterior lobe very large and obliquely rounded at the tip. Last pair of epimeral plates of metasome rounded at the lateral corners. Eyes small, rounded, placed at some distance from the tip of the lateral corners of the cephalon. Antennæ rather strongly built, and provided along their posterior edge with numerous fascicles of slender bristles; the superior ones about half the length of the body, 2nd joint of the peduncle the longest, 3rd joint somewhat longer than the 1st, flagellum but little exceeding half the length of the peduncle, and composed of about 9 articulations. Inferior antennæ a little shorter than the superior, with the flagellum about the length of the last 2 peduncular joints combined. Anterior gnathopoda in female rather robust, with the carpus expanded below to a broad setiferous lobe, propodos somewhat exceeding the carpus in length, and rather broad, oval quadrangular in form, with the palm nearly transverse and defined below by an obtuse angle, dactylus strong and minutely denticulated inside. Posterior gnathopoda somewhat more strongly built than the anterior, but otherwise of a very similar structure, carpal lobe very narrow, propodos large and broad, with the palm somewhat flexuous, and defined below by a distinctly projecting angle armed with a slender spine. Gnathopoda in male considerably stronger than in female, with the propodos comparatively larger, palm in the anterior ones slightly excavated, in the posterior ones much shorter than the hind margin and defined below by a strong acuminate projection, its edge, bi-sinuate, with a narrowly rounded lobe in the middle, dactylus in both pairs, but especially in the posterior one, very strong. Pereiopoda comparatively rather stout; antepenultimate pair with the propodal joint somewhat expanded in its outer part, forming a kind of palm armed with a slender spine, against which the short and stout dactylus impinges, when closed; the last 2 pairs of nearly equal length, with the basal joint oblong oval in form. Last pair of uropoda with the outer ramus scarcely longer than the basal part, terminal joint tipped by a strong spine. Telson not twice as broad as it is long, outer part tapering, and having on either side of the tip a small nodiform projection. Body greyish white, variegated with a light brown pigment, forming more or less distinct bands across the segments and coxal plates. Length of adult female 5 mm, of male about the same.

Remarks. — This form was first described by Kroyer from Greenland specimens, and may be regarded as the type of the present genus. The

Amphithoë pygmæa of Lilljeborg is identical with this form. From the 2 succeeding species it may be easily distinguished by the comparatively strongly built antennæ and pereiopoda, the less produced lateral corners of the cephalon, and the structure of the gnathopoda in the two sexes.

Occurrence. — I have met with this species in several places on the Norwegian coast, from Jæderen up to Finmark (Vardo), in depths varying from 20 to 50 fathoms. It is a true domicolous form, constructing for itself abodes of mud, which are generally fastened to the stems of Hydroida.

Distribution. — Greenland (Krøyer), Iceland (Torell), Kattegat (Meinert).

16. **Photis longicaudata,** (Sp. Bate).

(Pl. 203, fig. 1).

Eiscladus longicaudatus, Sp. Bate, Brit. sessile-eyed Crust. I, p. 412.

Syn: Photis Lütkeni, Boeck.

Body somewhat more slender and less deep than in the preceding species. Cephalon fully as long as the first 2 segments of mesosome combined, frontal part rather produced, with the lateral corners greatly projecting, forming narrowly rounded lobes. Anterior pairs of coxal plates but little deeper than the corresponding segments, 1st pair scarcely tapering distally, 5th pair with the anterior lobe narrowly rounded at the tip. Last pair of epimeral plates of metasome rounded at the lateral corners. Eyes very small, rounded, placed at the very tip of the lateral lobes of the cephalon. Antennæ much more slender than in the type species, and somewhat less densely setous; the superior ones exceeding half the length of the body, joints of the peduncle about as in *P. Reinhardi,* flagellum longer than the last 2 peduncular joints combined. Inferior antennæ scarcely shorter than the superior, and having the antepenultimate joint of the peduncle unusually narrow and elongated, flagellum about the length of the last 2 peduncular joints combined. Gnathopoda less strongly built than in the preceding species; the anterior ones having the carpus scarcely expanded below, propodos subtriangular in form, with the palm rather oblique. Posterior gnathopoda in male considerably larger than the anterior, with the propodos rather expanded, forming below a projecting angle defining the palm inferiorly, the latter somewhat excavated in the middle, and exhibiting, on either side of the excavation, a slight angular projection. Pereiopoda much more slender than in *P. Reinhardi;* the 2 anterior pairs with the propodal joint very narrow, and nearly twice as long as the carpal one, last pair considerably longer than the other pairs, extending, when reflexed, to the end of the body. Last pair of uropoda with the outer ramus rather elongated. exceeding in length the basal part, its terminal joint without any spine, but tipped by 2 slender bristles. Telson very small, otherwise of a shape similar to that in the preceding species. Body whitish, with light brown bands across the segments and coxal plates. Length of adult male scarcely exceeding 4 mm.

Remarks — I think there cannot be any doubt, that the above described form is that recorded by Sp. Bate as *Eiscladus longicaudatus*. Boeck erroneously identified this latter form with *P. Reinhardi,* whereas it is unquestionably the same as his 2nd species *P. Lütkeni*. From *P. Reinhardi* this form is at once distinguishable by its more slender form of body and less strongly built antennæ and legs, but especially by the greatly projecting lateral lobes of the cephalon, well indicated in the figure given by Sp. Bate.

Occurrence. — I have only seen a few specimens of this form, which were collected off the west coast of Norway (Haugesund), in a depth of about 30 fathoms.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux).

17. **Photis tenuicornis,** G. O, Sars.

(Pl. 203, fig. 2).

Photis tenuicornis, G. O. Sars, Oversigt af Norges Crustaceer I, p. 110. Pl. 6, fig. 4.

Body short and stout, with broadly rounded back, and rather deep, especially in the female. Cephalon not quite as long as the first 2 segments of mesosome combined, lateral corners rather produced, and narrowly rounded at the tip. Anterior pairs of coxal plates comparatively large, fully twice as deep as the corresponding segments, and scarcely setous at the edges; 1st pair slightly attenuated distally, and narrowly rounded at the tip; 5th pair with the anterior lobe very large and somewhat expanded in its outer part. Last pair of epimeral plates of metasome slightly produced at the lateral corners. Eyes very small, and placed at the tip of the lateral lobes of the cephalon. Antennæ extremely thin and but sparsely setous; the superior ones but little exceeding in length $^1/_3$ of the body, 2nd joint of the peduncle a little longer and much narrower than the 1st, 3rd joint shorter than the latter, flagellum very slender and nearly as long as the peduncle, being composed of but 5 elongated articulations. Inferior antennæ fully as long as the superior, with the flagellum about the length of the last 2 peduncular joints combined, and likewise composed of 5 articulations. Gnathopoda in female not very strong, the anterior ones with the carpus rather elongated, and but slightly expanded below, propodos about same length, and oblong oval in form, with the palm imperfectly defined below. Posterior gnathopoda, as usual, somewhat stronger than the anterior, with the carpus rather short, and produced below to a narrow setiferous lobe, propodos oval triangular in form, with the palm rather oblique, and defined below by an obtuse angle. Both pairs of gnathopoda in male, but especially the posterior ones, much stronger than in female, propodos of the anterior ones having the palm deeply excavated in the middle, and defined below by a projecting angle, that of the posterior ones extremely large, being greatly expanded in its proximal part, and rapidly tapering distally, palm much longer than the hind margin, and defined below by a strongly projecting triangular lobe, its edge minutely crenulated and bisinuate, with 2 angular projections, dactylus rather strong and, when closed, impinging within the posterior sinus of the palm. Pereiopoda rather slender, and somewhat resembling those in *P. longicaudata;* last pair, however, less elongated, not nearly extending to the end of the body. Last pair of uropoda nearly the same as in that species. Telson extremely small, being nearly twice as broad as it is long, and having, as usual, on either side at the tip a small nodiform projection. Body whitish grey, with a very slight trace of a somewhat darker pigment on the coxal plates. Length of adult female scarcely attaining 4 mm, of male about the same.

Remarks. — The present species is easily distinguishable from both the preceding ones by the short and stout body, the comparatively very large coxal plates, the very thin and sparsely setous antennæ, and by the structure of the gnathopoda, especially those in the male. It is also much inferior in size.

Occurrence. I first detected this form in the Varangerfjord, where it occurred rather abundantly in a depth of 30—40 fathoms. Subsequently I have also met with it in a few other places on the Finmark coast, and southwards to Bronosund on the Nordland coast.

Distribution. — Greenland (Hansen), British Isles (Waller).

Gen. 10. **Podoceropsis**, Boeck, 1860.

Syn: Nænia, Sp. Bate.
» Xenoclea, Boeck.

Form of body resembling that in the gen. *Gammaropsis.* Cephalon with the frontal part rather produced, and having the lateral corners angular. Coxal plates of moderate size; 5th pair with the anterior lobe more or less deep. Eyes well developed, and placed on each side of the frontal part of the cephalon. Antennæ rather slender, and subequal in length, with elongated peduncles, both pairs densely setiferous, the superior ones without any trace of an accessory appendage. Anterior lip more or less produced in front. Mandibular palps elongated and densely setous. Oral parts otherwise normal. Gnathopoda very unequal, the anterior ones being rather feeble, and of same structure in the two sexes, the posterior ones much larger, and very powerfully developed in the male. Pereiopoda normal and more or less slender, the 3 posterior pairs with the basal joint moderately expanded. Last pair of uropoda scarcely extending beyond the others, rami subequal. Telson rounded, tubular.

Remarks. — In spite of the absolut want of an accessory appendage to the superior antennæ, this genus exhibits a very close affinity to the genus *Gammaropsis,* with which it agrees perfectly in nearly all other points. The genus *Nænia* of Sp. Bate is identical with that of Boeck, which was established somewhat earlier. As already pointed out by Prof. Meinert, the genus *Xenoclea* of Boeck, though placed within a different subfamily, cannot properly be distinguished from the genus *Podoceropsis,* and ought therefore to be merely regarded as a synonym. The genus comprises 2 Norwegian species› to be described below. The *Nænia undata* of Sp. Bate would also seem to belong to this genus. Moreover Dr. Hansen has described an Arctic species as *P. Lindahli,* and a 5th species has been added by the Rev. Mr. Stebbing from the Challenger Expedition.

18. **Podoceropsis Sophiæ,** Boeck.

(Pl. 204).

Podoceropsis Sophiæ, Boeck, Forh. ved de Skand. Naturf. 8de Møde, 1890, p. 666.

Syn: Nænia tuberculosa, Sp. Bate.

Body rather slender and somewhat compressed, with evenly rounded back. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners rectangular, with the lower edge gently curved. Anterior pairs of coxal plates but little deeper than the corresponding segments; 1st pair rather small and rounded at the tip, 5th pair with the anterior lobe not as deep as the preceding pair, and evenly rounded. Last pair of epimeral plates of metasome produced at the lateral corners to a short obtuse point, posterior edge slightly curved. Eyes very large, broadly oval, with bright red pigment. Superior antennæ nearly attaining $^2/_3$ of the length of the body, 2nd joint of the peduncle much the longest, 3rd joint exceeding the 1st in length, flagellum not attaining the length of the last 2 peduncular joints combined, but composed of about 10 articulations. Inferior antennæ fully as long as the superior, the 2 outer joints of the peduncle rather elongated, flagellum not attaining the length of those joints combined. Anterior lip obtusely produced in front. Mandibular palps rather slender. Anterior gnathopoda with the carpus elongated and but slightly expanded below, propodos about same length, but considerably broader, oval triangular in form, with the lower edge strongly curved in the middle, dactylus rather elongated, and minutely dentated inside. Posterior gnathopoda in female scarcely longer, but much more strongly built than the anterior, carpus very short, with a small setiferous lobe below, propodos very large, oval, palm nearly straight and longer than the hind margin, being defined below by an obtuse angle, palmar edge minutely serrulated, and armed in its lower part with 3 successive spines, dactylus long and slender; those of male very largely developed, with the propodos extremely large and oblong oval in form, fully twice as long as it is broad, and densely clothed with delicate bristles, palm forming in front of the middle a broad expansion divided into 2 dentiform projections, dactylus very strong and curved. The 2 anterior pairs of pereiopoda with the meral joint nearly as long as the 2 outer ones combined; the 3 posterior pairs successively increasing in length, and having the basal joint oblong oval in form. Last pair of uropoda with the rami a little longer than the basal part and mucroniform in shape, terminating in a simple acute point. Telson somewhat longer than it is broad, tip obtusangular, with 2 small spines on either side. Body banded with a beautiful reddish orange pigment, and having besides along the sides a series of irregular patches of a golden yellow colour, caused by some opaque matter lying inside the integuments; ova in the marsupial pouch bright red. Length of adult female 6 mm, of male about the same.

Remarks. — This form was first anounced by Boeck at the meeting of the Scandinavian naturalists in 1860, as the type of a new genus. The *Nœnia tuberculosa* of Sp. Bate, described some years later, is undoubtedly the same form. It may be regarded as the type of the present genus.

Occurrence. — I have frequently met with this form in several places both on the south and west coasts of Norway, as also in the Trondhjemsfjord, in depths varying from 30 to 150 fathoms.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux).

19. **Podoceropsis excavata**, (Sp. Bate).

(Pl. 205),

Nænia excavata, Sp. Bate, Catal. Amph. Brit. Mus, p. 272, Pl. XLVI, fig. 4.

Syn: Næenia rimapalmata, Sp. Bate ♂.
» Xenoclea Batei, Boeck.
» Podoceropsis Batei, Meinert.

Body comparatively stouter than in the type species and less compressed, with broadly rounded back. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners acutangular, with the lower edge nearly straight. Anterior pairs of coxal plates considerably deeper than the corresponding segments, and (in female) successively increasing in size to the 4th; 5th pair with the anterior lobe very large, and fully as deep as the preceding pair, tip broadly rounded. Last pair of epimeral plates of metasome but very slightly produced at the lateral corners. Eyes of moderate size, rounded oval in form, with dark pigment. Antennæ comparatively more strongly built than in the preceding species, and carrying dense fascicles of bristles posteriorly, the superior ones exceeding half the length of the body, 2nd joint of the peduncle the longest, 3rd joint longer than the 1st, flagellum nearly attaining the length of the peduncle, and composed of 12—16 articulations. Inferior antennæ fully as long as the superior, flagellum about the length of the last 2 peduncular joints combined. Anterior lip produced in front to an acuminate projection. Mandibular palps less slender than in *P. Sophiæ*. Anterior gnathopoda rather feeble, with the propodos scarcely as long as the carpus and but little broader, being oblong subfusiform in outline, with the lower edge but very slightly curved, dactylus very much elongated. Posterior gnathopoda in female, as usual, much stronger than the anterior, propodos rather large and broadly oval in form, with the palm shorter than the hind margin, and deeply excavated in the middle, the excavation being defined on either side by an angular projection, dactylus impinging, when closed, against the lower projection, which is accompanied by a strong spine; those in male very powerfully developed, with the propodos large and oval in form, not nearly twice as long as it is broad, palm having in the middle a deep sinus defined by 2 projecting lobes, the posterior of which is acute, the anterior subtruncate at the tip, dactylus very strong and curved. The 2 anterior pairs of pereiopoda with the meral joint not nearly as long as the 2 outer ones combined; the 3 posterior pairs comparatively more strongly built than in the type species, basal joint of the antepenultimate pair rounded and rather broad, that of the last 2 pairs oval in form. Last pair of uropoda with the rami not quite as long as the basal part, and somewhat unequal, the inner one being the larger and tipped by 2 slender bristles. Telson fully as broad as it is long, and having on either side of the obtusely produced tip 3 slender spines. Body more or less variegated with a dark brown pigment, especially accumulated along the sides of the segments and around the intestine. Length of adult female 7 mm, of male about the same.

Remarks. — I fully agree with Prof. Meinert that the *Nænia excavata* and *N. rimapalmata* of Sp. Bate are only the 2 sexes of one and the same species, and that *Xenoclea Batei* of Boeck is identical with this species. As, however, Sp. Bate's descriptions were published some years earlier than that of Boeck, one of his specific names, and more properly that given to the female, ought to be retained for the species. From the preceding form this is at once distinguished by the somewhat more robust body, the great development of the anterior lobe of the 5th pair of coxal plates, the black eyes, and the rather different shape of the posterior gnathopoda in the 2 sexes. Finally, the colour of the body is very different.

Occurrence. — I have met with this form in 3 different localities of the Norwegian coast, viz., at Mærdø near Arendal, at Magerø, south of the Trondhjemsfjord, and at Bejan, at the entrance of that fjord. In all 3 localities it occurred quite solitary in depths of 30—40 fathoms. Boeck records it from the Christianiafjord and at Haugesund.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), Dutch coast (Hoek).

Fam. 22. Podoceridæ.

Body more or less slender, smooth, with the coxal plates of moderate size or very small; 4th pair of same shape as the preceding ones, 5th pair with the anterior lobe much deeper than the posterior. Cephalon without any rostrum, frontal part more or less produced, postantennal corners well marked. Eyes generally distinctly developed. Antennæ elongated, the superior ones with the accessory appendage either very small or wanting; the inferior ones generally stronger than the superior, especially in the male. Oral parts on the whole normal. Gnathopoda more or less unequal, the posterior ones being the larger, and sometimes enormously developed in the male. Pereiopoda not very slender, the 3 posterior pairs generally strongly reflexed, with the dactylus unguiform, and in the antepenultimate pair, as a rule, inverted, Last pair of uropoda rather strong, bi-ramous or uniramous, rami shorter than the basal part, and more or less distinctly hooked. Telson very small.

Remarks. — The present family, as defined here, is nearly allied to the preceding one, there being apparently several connecting links between the two. Thus, as stated above, the genus *Amphithoë* exhibits some points of agreement with the genus *Photis,* and the genus *Ischyrocerus* would seem to resemble in many particulars the genera *Gammaropsis* and *Podoceropsis.* The only prevailing characteristic distinguishing this family from the preceding one, is the peculiar structure of the last pair of uropoda, the rami of which are more or less conspicuously hooked. This feature, which sometimes also extends to the telson, stands in close relation to the habits of the several species comprised within this family, they being all true domicolous forms. Boeck divided the family into two subfamilies, viz, *Amphithoinæ* and *Podocerinæ.* As I am at present not disposed to adopt any subfamilies, I have combined both. To the fauna of Norway belong 8 genera, to be described below.

Gen 1. **Amphithoë,** Leach, 1813.

Syn: Cymadusa, Savigny.
» Anisopus, Templeton.

Body slender and compressed, with the coxal plates of moderate size and closely contiguous, 5th pair with the anterior lobe very large, forming together with the preceding pairs a continuous series. Cephalon rather deep, with the frontal part but little produced. Eyes small, but distinct. Superior antennæ without any accessory appendage, and, as a rule, longer than the inferior; the latter much stronger in male than in female. Buccal area strongly prominent. Anterior lip rounded; posterior lip having the outer lobes bifid at the tip. Mandibles very strong, with the cutting edge coarsely dentate, palp comparatively short, with the terminal joint large and expanded, being densely setous both at the tip and the inner edge. First pair of maxillæ with the masticatory lobe coarsely spinous at the tip, basal lobe small uni-setose, palp of moderate size, with the terminal joint slightly expanded. Second pair of maxillæ with the outer lobe much larger than the inner. Maxillipeds having the masticatory lobes large and dentate inside, palp comparatively short. Gnathopoda distinctly subcheliform, in female not very strong, in male much more powerful, especially the posterior ones, but otherwise of the same structure as in the female. Pereiopoda rather stout, the 3 posterior pairs successively increasing in length, and having the propodal joint simple, basal joint of antepenultimate pair short and broad, that of the last 2 pairs oval in form. Last pair of uropoda with the basal part rather massive, rami subequal in length, the outer one lamellar, and armed with 2 recurved hooks, the inner one conical in form. Telson of moderate size, with a small tuberculiform projection on either side of the tip.

Remarks. — The present genus was established as early as in the year 1813 by Leach, to include the *Cancer (Gammarus) rubricatus* of Montagu. Boeck quotes as synonyms the genera *Cymadusa* of Savigny and *Anisopus* of Templeton. In the restriction here adopted, the genus is chiefly distinguished by the long slender body, the strong development of the inferior antennæ in the male, the shape of the mandibular palps and the posterior lip, the structure of the gnathopoda in the two sexes, and the form of the telson. Several species have been described as belonging to this genus from different parts of the Oceans, but it is most probable, that some of these species may more properly be referred to one or other of the 2 succeeding, nearly-related genera. To the fauna of Norway belongs only a single species, to be described below.

1. **Amphithoë rubricata**, (Mont.).

(Pl. 206).

Cancer (gammarus) rubricatus, Montagu, Linn. Trans. Vol. IX, p. 99.

Syn.: Amphithoë podoceroides, Rathke.
» — albomaculata, Krøyer.
» — litorina, Sp. Bate.

Body long and slender, somewhat compressed, and having the back evenly rounded throughout. Cephalon with the frontal part slightly produced and attenuated, lateral corners small, rounded, postantennal ones forming on each side a rather deep triangular lobe, edge between both very slightly concave. Anterior pairs of coxal plates much deeper than the corresponding segments; 1st pair obliquely expanded distally, with the anterior corner somewhat projecting, especially in the male; the 3 succeeding pairs rounded quadrangular in form; 5th pair with the anterior lobe very large and deep, obtusely truncated at the tip. Last pair of epimeral plates of metasome obtusangular at the lateral corners. Eyes very small, rounded oval, and placed close to the lateral corners of the cephalon, pigment dark red. Superior antennæ in female exceeding half the length of the body, 1st joint of the peduncle about the length of the 2nd, and armed at the tip posteriorly with a small spine, 3rd joint scarcely half as long as the latter, flagellum very slender, attaining twice the length of the peduncle, and composed of numerous articulations provided with short bristles; those in male generally considerably shorter, with the flagellum but little longer than the peduncle. Inferior antennæ in female much more strongly built than the superior and not nearly so much elongated, last joint of the peduncle shorter than the penultimate one, flagellum about half the length of the peduncle; those in male very strong, subpediform, and scarcely shorter than the superior. Anterior gnathopoda in female with the carpus slightly expanded below, propodos somewhat longer, and oblong oval in form, with the palm somewhat oblique, and defined below by an obtuse angle; those in male of almost exactly the same structure as that in the female, though a little larger. Posterior gnathopoda in female but little larger than the anterior, with the carpus produced below to a narrow setiferous lobe, propodos oval in form, with the palm defined below by a distinct angle carrying a small spine; those in male considerably larger than in female, but otherwise of a very similar structure, propodos densely setous at the tip, with the palm somewhat flexuous, and defined below by a rather projecting angle. The 2 anterior pairs of pereiopoda with the basal joint not much expanded; the 3 posterior pairs having the propodal joint slightly widening distally, and armed on the anterior edge with a row of small spines, the tip being provided with a dense fascicle of diverging bristles, basal joint of antepenultimate pair obliquely rounded and broader than that of the last 2 pairs. Last pair of uropoda with the basal part rather broad, and armed at the end superiorly with a transverse row of 4 – 5 strong spines, outer ramus sublamellar, and armed at the tip with 2 strong, recurved hooks, inner ramus somewhat narrower, with 2 lateral and 1 apical spine, besides a dense fascicle of bristles. Telson flattened, nearly as long as it is broad at the base, and slightly tapering distally, tip obtusely rounded, with a small tuberculiform projection on either side, within which are attached 3 slender bristles. Colour somewhat varying, now more or less dark reddish brown, now greenish, but generally exhibiting along the back a series of light patches, one in each segment. Length of adult female reaching 18 mm, of male 20 mm.

Remarks. — There cannot, I think, be any doubt, that the *A. podoceroides* of Rathke is the same species as that described many years previously by Montagu as *Cancer (gammarus) rubricatus,* and subsequently recorded by British authors as *Amphithoë rubricata.* Krøyer described the same species under another name, viz., *A. albomaculata,* and the *A. littorina* of Sp. Bate is nothing less than an adult male of this species. The colour is rather variable, according to the locality, and although I have never met with specimens of that brillant crimson, described by British authors, it is not unusual to find it of a deep reddish brown colour. Most generally however it exhibits a lighter, more or less greenish hue, the body being mottled all over with very small dark pigmentary spots.

Occurrence. — The species is very frequently found along the whole coast of Norway, from the Christianiafjord to Vadso, in comparatively shallow water, among algæ. According to Sp. Bate, it constructs itself a kind of nest, composed of different foreign matters spun together by fine fibres.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattgat (Meinert), Heligoland (Meinert), coast of France (Chevreux), Azores (Barrois).

Gen. 2. **Pleonexes,** Sp. Bate, 1857.

Syn.: Amphithoë, Sp. Bate (part).
» Sunamphithoë, Sp. Bate (part).

Body less slender than in the preceding genus, otherwise of a very similar appearance. Coxal plates of middle size, 5th pair with the anterior lobe rounded at the tip. Eyes small. Antennæ comparatively strongly built, with the articulations of the flagella rather thick and very sharply defined, the superior ones shorter than the inferior, and without any accessory appendage. Mandibular palps very narrow, with the terminal joint linear, and setiferous at the tip only. Posterior lip with the lateral lobes not bifid at the tip. Palp of 1st pair of maxillæ having the terminal joint long and narrow. Oral parts otherwise resembling those in *Amphithoë.* Gnathopoda comparatively stronger than in that genus, and rather unequal, the posterior ones being much the larger, and, in the male, very powerfully developed, with the propodos much expanded. The 2 anterior pairs of pereiopoda with the basal joint comparatively broad and laminar; the 3 posterior pairs strongly built, with the propodal joint much expanded distally, so as to form together with the dactylus a kind of subcheliform hand. Last pair of uropoda with both rami lamellar, the outer one exhibiting 2 strong recurved hooks, the inner one setiferous at the tip and without any spines. Telson terminating with 2 juxtaposed, strong, recurved hooks.

Remarks — This genus was proposed in the year 1857 by Sp. Bate, to include a form detected by him, and differing from *Amphithoë* in the inverted longitudinal relation of the 2 pairs of antennæ. Subsequently he withdraws the genus, and placed the species within the genus *Amphithoë*. He was, however, not aware, that he, at the same time, referred the female of the same species to a new genus, *Sunamphithoë*. I think there is some reason for retaining the genus originally proposed by Sp. Bate, since the form upon which it was founded in fact differs from *Amphithoë,* not only in the structure of the antennæ, but also in several other characteristics apparently of generic value, for instance, in the peculiar subcheliform character of the 3 posterior pairs of pereiopoda, and in the strongly-hooked telson. Moreover, there are to be found some differences in the structure of the oral parts. The genus comprises as yet but a single species, to be described below.

2. **Pleonexes gammaroides,** Sp. Bate.

(Pl. 201.)

Pleonexes gammaroides, Sp. Bate. Ann. Nat. Hist. 1857.

Syn: Sunamphithoë hamulus, Sp. Bate ♀.
» Amphithoë gammaroides, Sp. Bate ♂.
» Sunamphithoë longicornis, Boeck. ♂
» Sunamphithoë gammaroides, Stebbing.

Body comparatively strongly built, though somewhat elongated, with the back broadly rounded. Cephalon with the frontal part but very little produced, lateral corners evenly rounded, postantennal ones strongly produced below, the edge between the two being nearly straight. Anterior pairs of coxal plates but very little deeper than the corresponding segments; 1st pair obliquely expanded distally; 5th pair with the anterior lobe fully as deep as the preceding pair, and evenly rounded at the tip. Last pair of epimeral plates of metasome obtusely rounded at the lateral corners. Eyes small, orbicular, with dark red pigment. Superior antennæ in female not nearly attaining half the length of the body, 1st joint of the peduncle much the largest, 3rd scarcely half as long as the 2nd, flagellum not exceeding the peduncle in length, and composed of about 15 articulations, very sharply marked of from each other, and having on both edges a small recurved bristle. Inferior antennæ somewhat longer than the superior, and rather strongly built, with the flagellum exceeding half the length of the peduncle and unusually thick, being composed of about 10 articulations. Both pairs of antennæ in male considerably more elongated than in female, though otherwise of a similar structure. Anterior gnathopoda exactly alike in the two sexes, carpus rather short, triangular, propodos about twice its length and oblong oval in form, with the palm rather short. Posterior gnathopoda in female considerably stronger than the anterior, with the propodos rather large and broad, oval quadrangular in form, palm nearly transverse and defined below by a distinct angle, dactylus strong and, like that of the anterior ones, minutely denticulate inside; those in male still more powerfully developed, having the propodos extremely large and expanded, with the palm somewhat flexuous, and defined below by a distinctly projecting angle. Anterior pairs of pereiopoda with the basal joint oval subfusiform in outline; the 3 posterior pairs successively increasing in length, basal joint oval in form, that of the antepenultimate pair somewhat shorter, but scarcely broader than that of the last 2 pairs, propodal joint considerably expanded at the end, exhibiting a distinct palm armed with 3 strong spines, the outmost of which is much curved and unguiform. Last pair of uropoda with the rami subequal in size, the outer one armed with 2 very strong recurved hooks, the inner one with several slender bristles at the obtusely truncated tip. Telson, as seen from above, subtriangular in shape, outer part rapidly tapering, and terminating in 2 juxtaposed, very strong, hooked projections. Colour, according to Mr. Stebbing, a bright yellowish green, with sparse but conspicuous black dots. Length of adult female 6 mm, of male 7 mm.

Remarks. — There cannot, in my opinion, be any doubt, that the two forms described by Sp. Bate as *Pleonexes (Amphithoë) gammaroides* and *Sunamphithoë hamulus* are only the male and the female of one and the same species, for which the name first proposed by that author ought to be retained. Boeck also described the 2 sexes as 2 different species, identifying the female with Sp. Bate's species *Sunamphithoë hamulus,* whereas the male is described as a new species of the same genus, under the same of *S. longicornis.* I have had an opportunity of examining the somewhat defect type specimen of the latter, preserved in our Museum, and cannot find any other differences from male specimens of the present species than that the antennæ are unusually elongated. These appendages are however, as I have been enabled to ascertain from a series of specimens kindly sent me by the Rev. Mr. Stebbing and by M. Chevreux, subjected to some variation as to length, and the number of joints in the flagella is also rather variable.

Occurrence. — I have never myself met with this form, but Boeck states its occurrence at Farsund and Haugesund. The female specimen here figured is that originally described by Boeck as *Sunamphithoë hamulus;* the male specimen, as also the several detail-figures, have, on the other hand, been drawn from French specimens.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux), Azores (Barrois),

Gen. 3. **Sunamphithoë,** Sp. Bate, 1857.

Syn: Amphithoë, Boeck (part).

Form of body about as in the preceding genera. Cephalon not very deep and having the frontal part scarcely produced. Coxal plates of moderate size, 5th pair fully as large as the preceding pair. Eyes small, orbicular. Antennæ of the very same appearance in the 2 sexes, the superior ones being very elongated and slender, considerably longer than the inferior, and without any accessory appendage. Mandibles without any trace of palps. Posterior lip with the outer lobes bifid at the tip. Oral parts otherwise resembling those in the genus *Pleonexes.* Gnathopoda in female rather feeble and but sligthly unequal, propodos oblong and transversely truncated at the tip; those of male very unequal, the posterior ones being greatly developed, with the propodos extremely large and oval in form. The 2 anterior pairs of pereiopoda with the basal joint laminarly expanded; the 3 posterior pairs successively increasing in length, and having the propodal joint simple, not subcheliform, basal joint of antepenultimate pair very broad, that of the last 2 pairs oblong oval in form. Last pair of uropoda of a similar structure to that in *Pleonexes.* Telson very small, with only a small tuberculiform projection on either side of the tip.

Remarks. — The generic diagnosis given by Sp. Bate of his genus *Sunamphithoë,* does not, it is true, agree with that here given, as it was set up merely in reference to one of the 2 species included by him in this genus, viz., *S. hamulus.* But as this species has turned out to be only the female of the form upon which he at first founded his genus *Pleonexes,* I have felt justified in restricting the present genus to the 2nd species referred by him to the genus *Sunamphithoë,* viz., *S. conformata.* A closer examination of this form has indeed shown it to be generically distinct both from the genus *Amphithoë* and *Pleonexes.* The chief distinguishing characteristics refer to the structure of the gnathopoda, and especially the remarkable transformation of the posterior ones in the male. Moreover, the absolute want of mandibular palps is a very prominent characteristic, apparently of generic value. In the structure of the pereiopoda and caudal appendages, it agrees more closely with the genus *Amphithoë* than with *Pleonexes.* Of the several exotic species of *Amphithoë* described by different authors, at least 3 species may most probably be referred to this genus, viz., *A. pelagica* M.-Edw., *A. chilensis* Nicoli, and *A. orientalis* Dana. To the fauna of Norway belongs but a single species, to be described below.

3. **Sunamphithoë conformata,** Sp. Bate.

(Pl. 208).

Snnamphithoë conformata, Sp. Bate, Catal. Amph. Brit. Mus., p. 251, Pl. XLIII, fig. 6.

Syn: Amphithoë grandimana, Boeck.

Body moderately slender, smooth, with evenly rounded back. Cephalon with the lateral corners broadly rounded, and defined from the postantennal ones by a slight sinus. Anterior pairs of coxal plates somewhat deeper than the corresponding segments, and having each a series of slender bristles on the distal edge; 1st pair scarcely expanded distally, 5th pair with the anterior lobe very large and broad, being obtusely truncated at the tip. Last pair of epimeral plates of metasome nearly rectangular. Eyes small, rounded, and placed at some distance from the lateral corners of the cephalon, pigment dark red. Superior antennæ very slender, considerably exceeding half the length of the body, 1st joint of the peduncle much the largest, 3rd joint very small, flagellum nearly 3 times as long as the peduncle, and composed of numerous short setiferous articulations. Inferior antennæ but little more than half as long as the superior, last joint of the peduncle shorter than the penultimate, flagellum not attaining the length of those joints combined. Anterior gnathopoda of same structure in the two sexes, being rather slender, with the carpus slightly expanded, propodos rather narrow and oblong in form, palm short transverse, dactylus longer than the palm. Posterior gnathopoda in female but little stronger than the anterior, and of a very similar structure, except that the carpal lobe is somewhat narrower, and that the propodos is a little broader in proportion to its length; those in male very unlike those in female, and rather powerfully developed, carpus short and produced below to a narrow setiferous lobe, propodos extremely large, nearly equalling half the length of the leg, and oblong oval in form, palm occupying almost the whole lower edge, being minutely denticulated and expanded in front to a somewhat irregular, densely setiferous lobe, rounded at the tip, dactylus very strong and somewhat flexuous. The 2 anterior pairs of pereiopoda with the basal joint pronouncedly lamellar, with the anterior edge boldly curved below, meral joint expanded in front to a broadly rounded lobe, dactylus terminating in a blunt point. The 3 posterior pairs of pereiopoda moderately strong, with the propodal joint armed on the anterior edge with a row of small spines, basal joint of antepenultimate pair rather broad and obliquely rounded, that of the last 2 pairs oblong oval in form. Last pair of uropoda with the outer ramus minutely denticulate on the upper edge and armed at the tip with 2 strong, recurved hooks, inner ramus broader than the outer, and obliquely truncated at the tip, which carries several slender bristles and 2 small spines at the lower corner. Telson nearly twice as broad as it is long, and having on either side of the angularly produced tip a small tuberculiform projection. Body, according to Sp. Bate, of a yellowish or fawn colour, with a few red marks at the origin of the legs. Length of adult female 8 mm, of male about the same.

Remarks. — There cannot be any doubt that the above-described form is that so named by Sp. Bate. The latter author only examined the male sex, but the female has subsequently been described by the Rev. Mr. Stebbing. The *Amphithoë grandimana* of Boeck is without any doubt the male of this species. The structure of the gnathopoda in the 2 sexes will suffice to recognize at once this form from the 2 preceding ones.

Occurrence. — I have only seen a few specimens of this form, which were collected, many years ago, at Apelvær, Namdal, in comparatively shallow water, among algæ. Boeck records the species from Farsund, south coast of Norway.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux), Azores (Barrois).

Gen. 4. **Ischyrocerus,** Krøyer, 1838.

Syn.: Podocerus, auctorum (part).

Body more or less slender, with the coxal plates of moderate size; 4th pair the largest and scarcely emarginated posteriorly; 5th pair with the anterior lobe deeper than the posterior. Cephalon with the frontal part somewhat produced and attenuated, lateral lobes small, subangular, postantennal corners rather deep, and defined in front by a distinct emargination encircling the large basal joint of the inferior antennæ. Eyes distinct or obsolete. Antennæ rather strongly built, and densely setiferous posteriorly, with elongated peduncles and comparatively short flagella; the inferior ones being, as a rule, the longer, and subpediform, the superior ones provided with a very small accessory appendage. Mandibular palp very large, with the terminal joint lamellarly expanded and densely setiferous. Oral parts otherwise normal. Gnathopoda in female comparatively feeble, the posterior ones being but little stronger than the anterior, propodos in both pairs obpyriform, with the palm imperfectly defined. Posterior gnathopoda in male much larger than in female and sometimes peculiarly modified, but never exhibiting any approach to a cheliform character. The 3 posterior pairs of pereiopoda much larger than the 2 anterior ones, and, as a rule, strongly reflexed, basal joint laminar. Branchial lamellæ comparatively small; incubatory lamellæ large and broad. Last pair of uropoda projecting beyond the others, basal part rather large and compressed, rami short and more or less hook-shaped, the inner one generally with a number of small recurved hooks near the tip. Telson small, triangularly pointed at the tip.

Remarks. — This genus was established by Krøyer in the year 1838, to include a northern species, *I. anguipes*. By most subsequent authors it has been combined with the genus *Podocerus* of Leach, to which it indeed bears a very close relationship. It differs, however, materially in the structure of the posterior gnathopoda, which in the female are far less strong than in that genus, and in the male never exhibit any approach to the peculiar cheliform character, distinguishing the genus *Podocerus*. Several species of the present genus have been recorded, especially from the northern Oceans. To the fauna of Norway belong 4 species, to be described below, one of which is now for the first time established.

4. **Ischyrocerus anguipes**, Kroyer.

(Pl. 209).

Ischyrocerus anguipes, Krøyer, Grønl. Amphip., Danske Vid.-Selsk. Afh. VII, p. 283, Pl. III fig. 14.

Syn: Gammarus zebra, Rathke.
» Podocerus anguipes, aut.

Body rather slender, especially in the male, with the back evenly rounded throughout. Cephalon about the length of the first 2 segments of mesosome combined, lateral lobes obtusely angular, with the inferior edge gently curved. Coxal plates in female successively increasing in size to the 4th pair, which are considerably deeper than the corresponding segment, 5th pair with the anterior lobe nearly as deep as the preceding pair; those in male comparatively less deep and also less unequal in size, the 2nd pair being fully as broad and nearly as deep as the 4th. Last pair of epimeral plates of metasome obtusangular. Eyes comparatively small, rounded, placed near the lateral lobes of the cephalon, pigment dark brown. Superior antennæ somewhat exceeding in length $^1/_3$ of the body, 2nd joint of the peduncle the longest, 3rd joint much longer than the 1st, flagellum scarcely exceeding halt the length of the peduncle, and composed of 6 articulations, accessory appendage nearly as long as the 1st articulation of the flagellum, and biarticulate, the terminal joint very small, Inferior antennæ in female but little longer than the superior, last joint of the peduncle somewhat longer than the penultimate one, flagellum about the length of the latter joint and 5-articulate; those in male much more elongated than in female, and rather strongly built, with the last 2 joints of the peduncle about equal-sized, each being much longer than the flagellum. Anterior gnathopoda in both sexes rather feeble, propodos somewhat expanded, with the lower edge evenly curved, and armed with 2 small spines near the middle. Posterior gnathopoda in female of about same shape as the anterior, though somewhat larger; those in male very large and, when fully extended, about half the length of the body, meral joint produced in front to a narrow mammilliform projection, propodos very much elongated, and nearly of equal breadth everywhere, being distinctly curved, with the upper edge boldly convex, the lower, concave and densely setous, palm not defined, but produced in front to a narrowly truncated prominence, finely denticulated at the tip, dactylus falciform, with the inner edge slightly bulging in the middle. Pereiopoda rather strongly built and edged with fascicles of stiff bristles, basal joint of the 3 posterior pairs oblong oval in form, with the posterior edge smooth. Last pair of uropoda having the basal part supplied with several small spines, outer ramus conically tapering and tipped with a small spine, inner one somewhat broader and slightly bent in its outer part, which tapers to a point, and has on the upper edge 4 closely set, recurved denticles. Telson but little longer than it is broad at the base, and having, at about the middle on each side, a transverse dorsal row of 4 slender spines: outer part triangularly pointed. Body of somewhat variable colour, now greenish with small black specks, now variegated with light reddish brown transverse bands. Length of adult female 8 mm., of male 9—10 mm.

Remarks. — The present form was first described by Krøyer, in the male sex, from Greenland specimens, as the type of his genus *Ischyrocerus,* and was subsequently recorded by Rathke from the west coast of Norway, under another name, viz. *Gammarus zebra.* Bruzelius referred the species to the genus *Podocerus* of Leach, and most subsequent authors have followed him in this view. It is chiefly distinguished from the next very nearly related species by its much larger size and by the shape of the posterior gnathopoda in the male.

Occurrence. — Off the coast of Finmark this form is rather frequently met with in comparatively shallow water among algæ. It also occasionally occurs farther south, as in the Trondhjemsfjord and off the west coast of Norway. Even as far south as Jædern, I have found it rather plentiful among the red algæ.

Distribution. — Arctic Ocean widely distributed: Greenland (Krøyer), Spitsbergen (Goës), Iceland (Torell), the Murman coast (Jarzinsky), the White Sea (idem), the Kara Sea (Hansen), the Siberian polar Sea (Stuxberg); Bohuslän (Bruzelius), Kattegat (Meinert).

5. **Ischyrocerus minutus**, Lilljeborg.

(Pl. 210, fig. 1).

Ischyrocerus minutus, Lilljeborg, Kgl. Svenska Vet. Acad. Handl. 1850, p. 335.

Syn: Podocerus anguipes, Boeck (part).
» Podocerus isopus, Walker.

Very like the preceding species, but much smaller. Cephalon with the lateral lobes acutangular. Coxal plates in female comparatively large, in male, as usual, much less deep; 5th pair with the anterior lobe nearly as deep as the preceding pair. Last pair of epimeral plates of metasome rectangular. Eyes small, rounded, with dark brown pigment. Antennæ somewhat variable in length, now comparatively short and stout, now rather slender and elongated; flagellum of the superior ones composed of 5—6 articulations, accessory appendage somewhat shorter than the 1st articulation of the flagellum. Inferior antennæ in male, as usual, much more strongly built than in female. Gnathopoda in female nearly as in the preceding species, though having the palm of the propodos more clearly defined. Posterior gnathopoda in male very much elongated, ischial joint expanded above to a rounded compressed lobe, meral joint obtuse in front, propodos very large, and, as in the preceding species, comparatively narrow in proportion to its length, being, however, not at all curved, but quite straight, with the lower edge even slightly convex in the middle, and forming anteriorly a very conspicuous, almost clavate prominence issuing at a right angle to the propodos; dactylus very strong and curved, impinging, when closed, with the tip about in the middle of the lower margin, its inner edge being at the same time in close contact with the above-named clavate prominence. The 2 anterior pairs of pereiopoda about as in *I. anguipes*; the 3 posterior pairs, on the other hand, comparatively stouter, with the basal joint broader, and having the hind edge slightly crenulated. Last pair of uropoda with the inner ramus shorter than the outer, but much broader in its proximal part, and having 3 recurved denticles on the upper edge near the tip. Telson with only a single pair of dorsal spines. Colour somewhat variable, now yellowish green with numerous dark specks, now whitish with brownish red transverse bands. Length of adult female scarcely exceeding 4 mm, of male but little larger.

Remarks. — There cannot, I think, be any doubt, that the above described form is that recorded by Prof. Lilljeborg as *Ischyrocerus minutus*, and that the *Podocerus isopus* of Walker is the same species. It is very nearly related to *I. anguipes*, and has probably by most other authors been confounded with this species. On a closer examination, it is, however, found to differ not only in its very inferior size, but also in the somewhat more strongly built posterior pereiopoda, the shape and armature of the last pair of uropoda and of the telson, and especially in the rather different structure of the posterior gnathopoda in the male.

Occurrence. — The species occurs very abundantly along the whole south and west coast of Norway in comparatively shallow water among algæ, and is not infrequently met with in rock-pools left by the tide.

Distribution. — Bohuslän (Lilljeborg), British Isles (Walker).

6. **Ischyrocerus megalops,** G. O. Sars, n. sp.

(Pl. 210, fig. 2).

Body not very slender, but somewhat compressed. Cephalon about the length of the first 2 segments of mesosome combined, lateral lobes distinctly angular. Coxal plates rather large, successively increasing to the 4th pair, which are considerably deeper than the corresponding segment; 5th pair only half as deep as the preceding pair. Last pair of epimeral plates of metasome obtusangular. Eyes unusually large, rounded oval in form, and having the visual elements very fully developed, pigment dark. Antennæ rather strongly built, the superior ones equalling about half the length of the body, and having the last 2 peduncular joints subequal, flagellum half the length of the peduncle, and composed of 8 articulations, accessory appendage extremely minute, not nearly attaining to half the length of the 1st articulation of the flagellum. Inferior antennæ (in male) about same length as the superior, last joint of the peduncle a little longer than the penultimate one, flagellum about the length of the former joint, and 6-articulate. Both pairs of gnathopoda in male comparatively stout, and rather similar in structure, though the posterior ones are much the larger; propodos rather broad and oval in form, with the palm simple, without any trace of projections, being defined posteriorly by a slight angle carrying several short spines. Pereiopoda comparatively stout, basal joint of the antepenultimate pair of a somewhat unusual form, being very broad at the base, and scarcely narrower than that of the 2 posterior pairs. Last pair of uropoda nearly of same structure as in *I. minutus.* Telson triangular in form, and carrying dorsally a few simple bristles, outer part tapering to an obtuse point. Body whitish, with indistinct brownish bands across the segments and coxal plates. Length of adult male 7 mm.

Remarks. — The present new species exhibits in the structure of the gnathopoda some resemblance to the Arctic form, *I. latipes* Krøyer, from which, however, it is easily distinguishable, especially by the unusually full development of the eyes.

Occurrence. — I have only seen a few specimens of this form; these were collected at Hammerfest, being found clinging to Hydroidæ at a depth of about 40 fathoms.

7. **Ischyrocerus megacheir,** (Boeck).

(Pl. 211).

Podocerus megacheir, Boeck, Crust. amph. bor. & arct. p. 187.

Body comparatively slender and rather compressed. Cephalon somewhat exceeding in length the first 2 segments of mesosome combined, and having the frontal part rather produced, lateral lobes acutangular. Coxal plates scarcely deeper than the corresponding segments; 1st pair angular in front; 4th pair scarcely larger than the 3rd; 5th pair with the anterior lobe nearly as deep as the preceding pair. Last pair of epimeral plates of metasome rectangular. Eyes rather large, rounded oval, pigment light brown. Antennæ very much elongated and densely setiferous; the superior ones equalling about $^2/_3$ of the length of the body, and with the last peduncular joint the longest, flagellum in female about half the length of the peduncle, and composed of 8 articulations, in male somewhat longer, and 10-articulate. Inferior antennæ about the length of the superior, last joint of the peduncle the longest, flagellum half the length of the peduncle and 8-articulate. Gnathopoda of female somewhat unequal, the posterior ones being considerably larger than the anterior, propodos in both pairs regularly oval in form, with the palm imperfectly defined; the posterior ones in male extremely powerful, with the propodos very large and tumid, exhibiting an oblong oval form, palm slightly flexuous, with a low, irregularly crenulated prominence in front, and defined posteriorly by an obtuse angle carrying several small spines, dactylus very strong and, when closed, impinging with the tip somewhat inside the palmar edge. Pereiopoda much more slender than in the preceding species, the 3 posterior pairs successively increasing in length, and having the basal joint oblong oval in form, with the hind edge smooth. Last pair of uropoda with the rami subequal, the inner one but slightly hooked at the tip, with a single small spine at about the middle of the upper edge. Telson subtriangular, about as long as it is broad at the base, and having 2 slender unequal bristles on each side of the tip. Body whitish, pellucid, with light orange bands across the segments. Length of adult female 7 mm, of male 8 mm. Maximum length of Arctic specimens 12 mm.

Remarks. — The present species, first established by Boeck, is easily distinguishable by the slender form of the body, the very much elongated and densely setiferous antennæ, the structure of the gnathopoda in the 2 sexes, the slender form of the pereiopoda, and the absence of secondary hooks on the inner ramus of the last pair of uropoda.

Occurrence. — I have met with this form not infrequently in several localities of the west coast of Norway, as also in the Trondhjemsfjord; and Boeck records it also from the Lofoten Isles (Skraaven). It is a true deep-water form, only occurring in depths of more than 50 fathoms.

Distribution. — Off Iceland, Bear Island and Spitsbergen (Norw. North Atl. Exped.).

Gen. 5. Podocerus, Leach, 1815

Syn: Jassa, Leach,
» Cratophium, Dana.

General habitus about as in the preceding genus. Coxal plates not very large, the 2 anterior pairs in male rather different in shape from the 2 succeeding pairs, which are subequal in both sexes and much deeper than the former. Eyes distinct, though not very large, placed near the lateral lobes of the cephalon. Antennæ of a structure similar to that in the genus *Ischyrocerus,* though somewhat more unequal, the inferior ones being both considerably longer and also more strongly built than the superior. Oral parts nearly as in that genus. Gnathopoda very unequally developed, the anterior ones being comparatively feeble, whereas the posterior ones are very powerful, and of rather different shape in the 2 sexes, in female subcheliform, in male distinctly chelate, the propodos being in the latter provided with a more or less projecting, thumb-like process, against which the dactylus impinges, when closed. Pereiopoda, uropoda and telson of a structure similar to that in the genus *Ischyrocerus.*

Remarks. — This genus was established by Leach as early as in the year 1815, to include a British species *P. variegatus.* The genus *Jassa* of the same author is indistinguishable from *Podocerus*, and must be considered as merely a synonym. This is also the case with the genus *Cratophium* of Dana. The genus is nearly allied to *Ischyrocerus*, from which it chiefly differs in the structure of the posterior gnathopoda, which in the female are much more strongly built than in that genus, and in the male exhibit a most peculiar aspect owing to the distinctly projecting, thumb-like process issuing from the lower side of the propodos, whereby these limbs become modified to cheliform organs. The genus comprises several species both from the northern and southern hemispheres. To the fauna of Norway belong 3 species, to be described below, one of which is now for the first time established.

8. **Podocerus falcatus**, (Mont).

(Pl. 212).

Cancer (gammarus) falcatus, Montagu, Transact. Lin. Soc. IX. p. 100, Pl. 5, figs. 1—2.

Syn: Jassa falcata, Leach (♂ jun).
» Jassa pulchella, Leach (♂ adult).
» Jassa pelagica, Leach (♀).
» Podocerus pulchellus, M- Edw. (♂).
» Podocerus calcaratus, Rathke (♂).
» Podocerus pelagicus, Sp. Bate (♀).

Body in female somewhat tumid in its anterior part, with broadly rounded back, in male far more slender and compressed. Cephalon with the frontal part rather produced and attenuated, lateral lobes small, rounded. Coxal plates in female scarcely deeper than the body, in male somewhat larger and broader; 1st pair angularly produced in front; 2nd pair transversely oval, lower in front than posteriorly; 5th pair with the anterior lobe not as deep as the preceding pair, and evenly rounded. Last pair of epimeral plates of metasome with a minute dentiform projection at the lateral corners. Eyes small, rounded, placed near the lateral lobes of the cephalon, pigment dark. Superior antennæ not attaining to half the length of the body, 2nd joint of the peduncle the longest, 3rd joint much longer than the 1st, flagellum scarcely half the length of the peduncle, and composed of 7—8 articulations, accessory appendage extremely small. Inferior antennæ considerably longer than the superior and also much more strongly built, especially in the male, last joint of the peduncle having, in addition to the usual fascicles of setæ, a dense clothing of short ciliated hairs, partly continued on the flagellum, this being rather robust and 6-articulate, terminating with several small hook-like spines. Anterior gnathopoda of same structure in the 2 sexes, propodos oval in form, with the palm straight, and defined by an obtuse angle carrying several short spines. Posterior gnathopoda in female much stronger than the anterior, with the propodos very large and irregularly oval in form, palm occupying the greater part of its length, and defined posteriorly by a projecting corner armed with 2 strong spines, its edge bisinuate, with a rounded prominence in the middle, and produced in front to an acute triangular lappet, dactylus strong and curved; those in the not yet sexually developed male having the propodos somewhat larger, and provided in the middle of the palm with a short, digitiform projection. Posterior gnathopoda in the adult male very different from those in female, propodos long and narrow, sending off from its base below, a long, spur-like process obtusely acuminate at the tip; palm straight and terminating anteriorly in a short, triangular lappet, dactylus very large and flexuous, impinging, when closed, against the tip of the spur-like process. The 2 anterior pairs of pereiopoda comparatively short and stout, with the basal joint somewhat laminar, and the meral joint considerably expanded in front; the 3 posterior pairs rather robust, and successively increasing in length, with their outer part edged with fascicles of stiff bristles: basal joint oval in form. Last pair of uropoda with the inner ramus distinctly hooked, and having 2 recurved secondary teeth at the upper edge near the tip. Telson very small, triangular, with a pair of small bristles on each side of the acutely produced tip. Colour somewhat variable, being, as a rule, somewhat darker in females than in males, with irregular patches of a brownish hue changing to a light red. Length of adult female 8 mm, of male 9 mm.

Remark. — The rather pronounced sexual difference in this form has caused the establishment of several species. The male has even been described by Sp. Bate under 2 different names, according to age, viz,, as *P. falcatus* and *P. pulchellus,* the latter being the fully adult form, the former the still young, not yet sexually developed male. The female, too, is by the same author recorded as a 3rd species, viz., *P. pelagicus*.. The *P. calcaratus* of Rathke is undoubtedly the adult male of this species; on the other hand it appears to me somewhat doubtful, whether *P. monodon* of Heller is, as believed by Boeck, referable to the same form. The species is easily distinguished from the 2 succeeding ones by its much larger size, and by the long and narrow thumb-like process of the posterior gnathopoda in the adult male. Some of the detail-figures given by Boeck in his great work would seem more properly to belong to the next species.

Occurrence. — The species occurs not infrequently along the whole south and west coasts of Norway, as also in the Trondhjemsfjord, in comparatively shallow water among algæ. According to Boeck it has been found by Dr. Danielssen at Tromsø; but I am inclined to believe, that this statement is erroneous, and caused by a confusion with the next, nearly allied species.

Distribution. — British Isles (Mont.), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch Coast (Hoek), coast of France (Chevreux), Mediterranean (Costa), Azores (Barrois).

9. **Podocerus pusillus,**[1] G. O. Sars.

(Pl. 212, fig 1).

Podocerus minutus, G. O. Sars, Oversigt af Norges Crustaceer, I, p. 112, Pl. 6, fig. 6.

Body comparatively shorter and stouter than in the type species, otherwise of a very similar appearance. Cephalon nearly as long as the first 2 segments of mesosome combined, lateral lobes rather broad and angular in front. Anterior pairs of coxal plates considerably deeper than the corresponding segments; 1st pair in female obtusely quadrangular, in male considerably produced in front; 2nd pair in male twice as broad as they are deep; 5th pair with the anterior lobe nearly as deep as the preceding pair. Last pair of epimeral plates of metasome scarcely produced at the lateral corners. Eyes comparatively larger than in *P. falcatus*, and rounded in form, with dark brown pigment. Superior antennæ almost half the length of the body, the last 2 peduncular joints subequal and each about twice as long as the 1st, flagellum half the length of the peduncle, and composed of only 5 articulations, accessory appendage extremely minute. Inferior antennæ somewhat longer than the superior, and as usual more strongly built in the male, though not nearly so robust as in *P. falcatus*, last joint of the peduncle about the length of the penultimate and, like the latter, carrying fascicles of slender bristles posteriorly, but without any clothing of ciliated hairs; flagellum slender, 4-articulate. Anterior gnathopoda nearly as in *P. falcatus*. Posterior gnathopoda in female less robust than in that species, propodos more regularly oval in form, with the palm less strongly flexuous, and defined posteriorly by a very slight angle armed with 3 small spines, in front of which there is a small angular prominence; those in the young male having, as in *P. falcatus*, in the middle of the palm of the propodos, a short digitiform projection. Posterior gnathopoda in the adult male very powerfully developed, with the propodos of a similar shape to that in *P. falcatus*, though very markedly differing in the circumstance that the thumb-like process is considerably shorter and broader, with the tip distinctly bilobed. Pereiopoda comparatively more slender than in the type species and less densely setiferous. Last pair of uropoda with the inner ramus less coarsely hooked. Telson small, and acutely produced at the tip. Body variegated with irregular patches of a dark brown colour. Length of adult female scarcely exceeding 5 mm, of male about the same.

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[1] To avoid confusion with *Ischyrocerus minutus* Lilljeb., in case the latter genus should not be accepted, I have thought it right to change the specific name of this form.

Remarks. — The present species is nearly allied to *P. falcatus*, but easily distinguishable by its very inferior size, and more particularly by the structure of the posterior gnathopoda in the two sexes. As above stated, the detail-figures given by Boeck in his great work, and assigned to *P. falcatus*, are more properly referable to the present species.

Occurrence. — I have met with this form in several places, both on the south and west coasts of Norway, as also in the Trondhjemsfjord, and northwards along the Nordland coast up to Hammerfest. It is generally found clinging to Hydroidæ growing in depths varying from 20 to 100 fathoms, and is never met with in company with *P. falcatus*, which is a more pronounced littoral form.

Distribution. — British Isles (Robertson), coast of France (Chevreux).

10. **Podocerus odontonyx**, G. O. Sars, n. sp.

(Pl. 213, fig. 2).

Very like the preceding species both as to size and general appearance. Lateral lobes of cephalon rather broad, and slightly emarginated at the tip. Eyes comparatively large, rounded, with brownish pigment. Antennæ almost exactly as in *P. pusillus.* Anterior gnathopoda likewise very similar. Posterior gnathopoda in male, however, rather differently shaped, with the propodos oblong oval in form, and sending off from about the middle of the lower edge, a comparatively small, anteriorly-pointing, thumb-like process, obliquely truncated at the tip, and defined from the anterior triangular lappet by a deep angular incision; dactylus exceedingly strong and curved, with its posterior edge projecting in the middle as a triangularly-pointed, dentiform projection. Pereiopoda, uropoda and telson nearly as in the preceding species. Body variegated with partly confluent patches of a dark brown colour. Length of adult male 5 mm.

Remarks. — The validity of this species may perhaps be questioned, since, both in size and in most of the anatomical details, it agrees very closely with *P. pusillus.* The structure of the posterior gnathopoda in the male is, however, so remarkably different both in the shape of the propodos and especially in the very conspicuous dentiform projection of the dactylus, that I have felt justified in separating it as a distinct species. The *P. Herdmani* of Walker would seem to be very nearly allied to the present form, and may indeed turn out to be the same species.

Occurrence. — I have only seen a few male specimens of this form, which were collected in two widely distant localities, viz., in the Trondhjemsfjord and at Hammerfest. In both localities it was taken from a very considerable depth, amounting to 150 fathoms.

Gen. 6. **Janassa,** Boeck, 1870.

Syn: Jassa, Bruzelius (not Leach).

Body comparatively robust and somewhat depressed, with the coxal plates not very large, but of same appearance in the two sexes. Cephalon with the lateral lobes very small and narrow, being defined posteriorly by a deep and broad emargination. Eyes small, placed within the lateral lobes of the cephalon. Antennæ very strongly built, especially the inferior ones, and densely clothed with stiff bristles, partly arranged in brush-like wreathes projecting beyond the anterior edge, flagella in both pairs only composed of a very restricted number of articulations, the 1st of which is very large; accessory appendage of the superior ones nearly obsolete. Mandibular palps very strong, with the terminal joint spatulate and densely hirsute. Oral parts scarcely differing otherwise from those in the genus *Podocerus*. Gnathopoda in both sexes very unequally developed, the posterior ones being much the stronger, with the propodos very broad, palm deeply excavated, and defined in female by a projecting corner, in male by a narrow thumb-like process. Pereiopoda about as in *Podocerus*. Last pair of uropoda with the rami short and subequal in length, the inner one distinctly hooked, but without secondary denticles. Telson of moderate size, and subtriangular in form.

Remarks. — This genus was first distinguished from *Podocerus* by Bruzelius, but the generic name *Jassa*, which he applied to that genus, cannot properly be accepted, since it is merely a synonym of *Podocerus*, being assigned by Leach to species undoubtedly belonging to the latter genus. Boeck, for this reason, changed the name *Jassa* to *Janassa*, though he erroneously identified the type of the genus with *Podocerus variegatus* of Leach. The genus is nearly allied to *Podocerus*, chiefly differing in the more strongly built and densely hirsute antennæ, the flagella of which are only composed of a very restricted number of articulations, the accessory appendage of the superior ones being quite rudimentary. Only a single species of this genus has hitherto been recorded.

11. **Janassa capillata**, (Rathke).

(Pl. 214).

Podocerus capillatus, Rathke, Nova Acta Cæsar. Leop. Carol. Nat. Cur. XX, p. 89.
Pl. IV, fig. 8.

Syn.: Jassa capillata, Bruzelius
» Janassa variegata, Boeck.

Body very strongly built and rather tumid, especially in the female, with broadly vaulted back. Cephalon comparatively small, not nearly attaining the length of the first 2 segments of mesosome combined, anterior part greatly narrowed, with the lateral lobes very minute and narrowly rounded at the tip. Coxal plates scarcely deeper than the corresponding segments; 1st pair subquadrangular, with the anterior corner somewhat more projecting in male than in female; 2nd pair in both sexes less deep, and transversely elliptical in form; the 2 succeeding pairs considerably larger, and nearly equal; 5th pair with the anterior lobe almost as deep as the preceding pair. Epimeral plates of metasome not very large, but rounded at the lateral corners. Eyes small, rounded, with dark pigment. Superior antennæ exceeding in length $1/3$ of the body, the last 2 joints of the peduncle nearly equal-sized, and each much longer than the 1st, all 3 being densely setiferous posteriorly, and having anteriorly scattered tufts of stiff bristles, flagellum scarcely as long as the last peduncular joint, and composed of only 3 articulations, the 1st of which is very large, the other 2 extremely minute; accessory appendage only represented by a minute nodule carrying 2 slender bristles. Inferior antennæ much stronger than the superior, especially in the male, and also longer, exceeding, in that sex, half the length of the body, both the peduncle and the flagellum densely clothed with stiff bristles arranged in numerous brush-like wreaths, flagellum, as in the superior ones, 3-articulate, but somewhat larger, equalling in length the last peduncular joint. Anterior gnathopoda of nearly same shape in the two sexes, carpus well developed, and triangular in form, propodos somewhat expanded in the middle, with the palm straight and rather oblique, being defined below by an obtuse angle armed with 2 or 3 spines. Posterior gnathopoda in female very powerfully developed, with the carpus extremely short, and the propodos large and broad, having the upper edge boldly curved, and the lower produced to a triangular projecting corner defining the palm posteriorly, this being deeply excavated and angularly projecting in front, dactylus strong and curved; posterior gnathopoda in male still more strongly developed, with the propodos exceedingly large, and having the inferior corner produced to a digitiform projecting process, against which the strong dactylus impinges, when closed. Anterior pairs of pereiopoda short and stout, with the basal joint somewhat expanded, and equalling in length the remaining part of the leg. The 3 posterior pairs of pereiopoda of moderate size, and slightly increasing in length, basal joint oval in form, with the infero-posteal corner somewhat produced. Last pair of uropoda but slightly extending beyond the others, basal part having at the tip a transverse row of spines and a fascicle of slender bristles, rami conically tapering, and each tipped with a short spine, the outer one having also a small lateral spinule, the inner one quite smooth, but distinctly hooked at the tip. Telson about as long as it is broad at the base, outer part narrowed, and having on either side of the angularly produced tip a small dentiform projection, inside which is attached a slender spine. Body of very dark colour, being variegated with a bistre-brown pigment, partly in the form of broad bands across the segments, and also present on the antennæ and legs. Length of adult female 7 mm, of male 9 mm.

Remarks. — As above mentioned, Boeck has identified this form with *Podocerus variegatus* of Leach, and most of the subsequent authors have followed him in this view. But there cannot be any doubt that such an identification is quite erroneous. For the latter form, according to the description and figure given by Sp. Bate, has the flagella of both pairs of antennæ multiarticulate, and the accessory appendage of the superior ones distinctly developed. Moreover the inner ramus of the last pair of uropoda is described and figured as terminating in 3 strong hooks, and the pigment of the body is stated to be red, not brown. Sp. Bate describes both forms separately, though regarding them as nearly allied. They, however, in reality belong to 2 different genera, *P. variegatus* being a true *Podocerus,* whereas the present form constitutes the type of a separate genus. It is easily recognized by its thick and stout body, and the densely hirsute antennæ, which latter character gave rise to the specific name proposed by Rathke.

Occurrence. — I have met with this form in a few localities on the south coast of Norway in comparatively shallow water among grass. According to Boeck, it also occurs off the west coast of Norway, and even up to Finmark.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), Mediterranean (Heller).

Gen. 7. **Erichthonius,** M.-Edw., 1830.

Syn.: Cerapodina, M.-Edw.
» Cerapus, Templeton (not Say).
» Pyctilus, Dana ♂.
» Dercothoë, Dana ♀.

Body slender, subdepressed, with very small coxal plates, the anterior pairs of which are no larger than the posterior; epimeral plates of metasome small; urosome narrow and elongated. Cephalon having the frontal part considerably produced, with the lateral lobes tumid and more or less projecting. Eyes well developed, and placed within the lateral lobes of the cephalon. Antennæ slender, subequal, and edged posteriorly with fascicles of slender bristles, the superior ones without any accessory appendage, the inferior ones issuing at a considerable distance behind the superior, and having the antepenultimate joint of the peduncle unusually elongated; flagella in both pairs multiarticulate. Anterior lip produced in front to an acuminate projection; posterior lip with well-defined inner lobes. Mandibles short and stout, with the palp much elongated, and having the terminal joint lamellar and densely setiferous. Maxillæ normal. Maxillipeds with the palps comparatively narrow. Gnathopoda very unequal, the anterior ones rather small, and of similar structure in the 2 sexes, with the carpus comparatively large and lamellarly expanded below, propodos short but broad, nearly triangular in form. Posterior gnathopoda in female considerably larger than the anterior, carpus produced below to a setiferous lobe, propodos rather expanded, with the palm well defined; those in male of enormous size and complexely chelate, the carpus being exceedingly large, and sending off from its end inferiorly an acuminate, thumb-like process, propodos narrower than the carpus, and having the palm imperfectly defined, dactylus large and, when closed, crossing the carpal process. Anterior pairs of pereiopoda with the basal joint lamellarly expanded; the 3 posterior pairs successively increasing in length, and having the basal joint oval in form; dactylus of antepenultimate pair inverted. Branchial lamellæ small, wanting at the base of the posterior gnathopoda; incubatory lamellæ large and broad. Last pair of uropoda with a single lamellarly unguiform ramus. Telson short and broad with 2 densely spinous prominences above.

Remarks. — The present genus was established in the year 1830 by Milne-Edwards, to include one of the species described below. For the form recorded by Templeton as *Cerapus abditus* he established another genus, *Cerapodina.* Sp. Bate justly pointed out that these 2 genera ought to be combined, but erroneously united them with the genus *Cerapus* of Say, and was followed in this view by Boeck. As shown by S. Smith, the last-named genus is, however, very different from *Erichthonius* of M.-Edw., which must therefore be restored, to include the species referred by Sp. Bate and Boeck to the former genus. Dana referred the females and males to 2 different genera, the former to the genus *Dercothoë*, the latter to the genus *Pyctilus,* and Sp. Bate adopted the former genus, though he had some suspicion of its validity. The genus differs rather considerably from the other *Podoceridæ*, and should perhaps more properly be included in the next family, *Corophiidæ*, exhibiting, as it does, several points of agreement with the genus *Cerapus* Say, belonging to that family. The peculiar structure of the posterior gnathopoda in the male is a very easily recognizable characteristic, whereby this genus differs conspicuously from the other Podoceridæ, and the structure of the last pair of uropoda and that of the telson is also rather peculiar. The genus comprises several species both from the northern and southern hemispheres. To the fauna of Norway belong 3 species, to be described below.

12. **Erichthonius abditus**, (Templeton).

(Pl. 215).

Cerapus abditus, Templeton. Trans. Ent. Soc. I, p. 188, Pl. XX, fig. 5.

Syn.: Cerapodina abdita, M.-Edw.
» Dercothoë punctata, Sp. Bate ♀.

Body moderately slender, with broadly vaulted back. Cephalon having the lateral lobes rather broad and produced in front to a small dentiform projection. Second pair of coxal plates somewhat larger than the 2 succeeding ones, and irregularly oval in form; 5th pair about same size as the 2nd, and having the anterior lobe rather deep and rounded. Last pair of epimeral plates of metasome smaller than the preceding pair, and narrowly rounded at the lateral corners. Eyes comparatively large, and somewhat protuberant, rounded in form, with bright red pigment. Superior antennæ considerably exceeding half the length of the body, 2nd joint of the peduncle the longest, 3rd joint longer than the 1st, flagellum nearly as long as the peduncle, and composed of about 12 articulations. Inferior antennæ of same length as the superior, and having the flagellum of about same length as the last 2 peduncular joints combined. Anterior gnathopoda with the propodos about the length of the carpus and considerably expanded in the middle, palm about the length of the hind margin. Posterior gnathopoda in female with the carpal lobe long and narrow, armed at the end with several recurved denticles in addition to the bristles, propodos rather large and expanded, with the palm longer than the hind margin; posterior gnathopoda in male extremely powerful, carpus very massive and having the thumb-like process comparatively large and somewhat curved, with a well-marked triangular expansion of the upper edge, propodos nearly as long as the carpus but considerably narrower, and somewhat curved, with the lower edge slightly concave in the middle, dactylus very large, lamellarly falciform. Basal joint of the 2 anterior pairs of pereiopoda very broad, with the anterior edge boldly curved; the 3 posterior pairs moderately slender. Penultimate pair of uropoda with the rami sublamellar and densely edged with small spinules; last pair with the basal joint rather large and broad at the base, terminal joint not attaining to half its length, and minutely bidentate at the tip. Telson twice as broad as it is long, and transversely truncated at the tip. Body of a pale orange hue, and mottled with reddish brown pigmentary spots, antennæ banded with chestnut-brown. Length of adult female 6 mm., of male 7 mm.

Remarks. — This form was first described by Templeton as *Cerapus abditus,* and the male subsequently recorded by Sp. Bate under the same name, whereas the female is described by that author as *Dercothoë punctata.* It may be best distinguished from the other species of the genus by the structure of the posterior gnathopoda in the male, the carpal process of which is very large and conspicuously bidentate.

Occurrence. — The species occurs not infrequently off the south and west coasts of Norway in depths varying from 10 to 40 fathoms, especially on rocky bottom overgrown with red algæ and Hydroidæ. It constructs for itself tubes of muddy substance, which are affixed, sometimes in great number, to stems of Hydroidæ or algæ.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), coast of France (Chevreux), Adriatic (Heller), Gulf of Naples (Costa), Azores (Barrois).

13. **Erichthonius difformis**, M.-Edw.

(Pl. 216, fig. 1).

Erichthonius difformis, Milne-Edwards, Ann. d. Sc. Nat. XX, p. 282.

Syn.: Podocerus Leachii, Krøyer
» Cerapus difformis, Sp. Bate.
» Cerapus longimanus, Boeck.

Body much more slender than in the preceding species, especially in the male. Cephalon with the frontal part very much produced, lateral lobes comparatively small and rounded at the tip. Coxal plates in female nearly as in *E. abditus;* 2nd pair in male much larger than any of the others, and subelliptical in form. Eyes comparatively small, rounded, with dark red pigment. Antennæ rather elongated, and less densely setiferous than in the said species, the last 2 peduncular joints of the superior ones about equal-sized. Gnathopoda in female nearly as in *E. abditus;* the posterior ones in male exceedingly elongated, exceeding, when fully extended, half the length of the body, carpus nearly 3 times as long as it is broad, and slightly instricted in the middle, thumb-like process rather elongate and nearly straight, sometimes smooth, sometimes with a very small tooth-like projection on the upper edge at some distance from the tip; propodos rather narrow, with the lower edge sinuated in the middle, and having at the base an obtuse projection; dactylus densely setiferous at the tip and the inner edge. Basal joint of the 2 anterior pairs of pereiopoda less expanded than in *E. abditus*; the 3 posterior pairs more slender. Uropoda and telson nearly as in that species. Body greyish white, more or less densely mottled with dark brown pigmentary spots. Length of adult female 4 mm., of male 5 mm.

Remarks. — This is the species upon which Milne-Edwards founded his genus *Erichthonius*. The *Podocerus Leachii* of Krøyer is identical with this form, and I am unable to distinguish the *Cerapus longimanus* of Boeck as a distinct species, agreeing, as it does, in all anatomical details with adult male specimens of the present species. The accessory small denticle on the carpal process is now present, now wanting, and cannot therefore be adduced as a specific mark. The form recorded by Goës from Spitsbergen as *E. difformis,* is most probably not this species but *E. megalops* G. O. Sars. The species may be easily distinguished by its very slender form, the small size of the eyes, and by the stucture of the posterior gnathopoda in the male.

Occurrence. — I have met with this form in several places both on the south and west coasts of Norway, at least to the Trondhjemsfjord. It is only found in comparatively shallow water, especially where the bottom is overgrown by grass, and in such places often occurs in great abundance.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek), coast of France (M.-Edw.), Mediterranean (Costa), Azores (Barrois).

14. **Erichthonius Hunteri,** (Sp. Bate).

(Pl. 216, fig. 2).

Cerapus Hunteri, Sp. Bate, Catal. of Amph. Brit. Mus. p. 264, Pl. XLV, fig. 3.

Body rather slender, though scarcely to such a degree as in *E. difformis.* Cephalon moderately elongated, with the lateral lobes comparatively broad, and produced at the tip to a small, somewhat upturned, dentiform projection. Second pair of coxal plates much smaller than the 5th, the latter with the anterior lobe very large and broad. Eyes rather large, rounded. Antennæ very much elongated and densely setiferous posteriorly, last peduncular joint of the superior ones somewhat shorter than the 2nd. Anterior gnathopoda with the propodos comparatively less expanded than in the 2 preceding species, and scarcely as long as the carpus. Posterior gnathopoda in female having the carpal lobe rather broad at the base and subtriangular in form; those in male, as usual, strongly developed, carpus scarcely twice as long as it is broad, and produced at the end below to a comparatively short and simple acute process, not reaching beyond the middle of the propodos, which is oblong oval in form, with the lower edge straight and provided with a lamellar, projecting border divided in the middle by a small incision, dactylus not very large, and without setæ. Basal joint of the 2 anterior pairs of pereiopoda considerably expanded; the 2 posterior pairs rapidly increasing in length, the last pair being rather slender and elongated. Uropoda and telson about as in the 2 preceding species. Colour in the living state of the animal not yet stated. Length of adult male 5 mm.

Remarks. — This species was first described by Sp. Bate from a specimen, the locality of which was not stated, and was subsequently recorded by Boeck from Norway. It may easily be distinguished from either of the 2 preceding species by the rather different structure of the posterior gnathopoda in the male.

Occurrence. — Only a few specimens of this form have hitherto come under my inspection. They were found off the west coast of Norway (the exact locality not being stated). Boeck found it at Haugesund.

Distribution. — Kattegat (Meinert).

Fam. 23. Corophiidæ.

Body smooth, depressed, with the metasome and urosome comparatively poorly developed. Coxal plates very small and non-contiguous. Cephalon broad and more or less produced in front, with the lateral lobes small and narrow. Eyes, when present, placed within the lateral lobes of the cephalon. Antennæ more or less slender, the inferior ones, as a rule, more strongly built than the superior; accessory appendage of the latter either present or wanting. Mandibular palps now well developed and triarticulate, now comparatively small with a smaller number of joints. Oral parts otherwise normal. Gnathopoda of different structure in the different genera, and generally rather unequally developed. Pereiopoda now short and stout, now very much elongated. Last pair of uropoda small, uniramous. Telson, as a rule, lamellar and entire.

Remarks. — The forms belonging to this family are generally distinguished by their depressed body and the poor development of the posterior divisions, whereby they are conspicuously divergent from the Amphipodous type, and have an appearance somewhat reminding of the Isopoda. The family is, however, not very sharply defined from the *Podoceridæ,* the genus *Cerapus* showing in some points an unmistakable affinity to the genus *Erichthonius* of the latter family. To the fauna of Norway belong 6 genera, to be treated of below,

Gen. 1. **Cerapus,** Say, 1817.

Syn.: Siphonoecetes, Sp. Bate (part).

Body slender, sublinear, with the metasome and urosome very small. Cephalon produced in front to a well-marked rostrum. Anterior pairs of coxal plates exceedingly small, the 3 posterior pairs considerably larger and distinctly bilobed. Eyes distinct, but small. Antennæ not very slender, and subequal in length, the superior ones without any accessory appendage, but having the 1st joint of the peduncle more or less greatly expanded; flagella in both pairs very short. Mandibular palps well developed, 3-articulate, with the terminal joint fully as large as the 2nd, and edged with long, curved setæ. Anterior gnathopoda of similar structure in the two sexes, and distinctly subcheliform. Posterior gnathopoda in female scarcely stronger than the anterior, and not subcheliform; those in male very powerfully developed, with the carpus exceedingly large and more or less produced below, so as to form together with the propodos and dactylus a complex chela. Anterior pairs of pereiopoda subequal, with the basal joint large and broad; the 3 posterior pairs comparatively short and strongly recurved, with the dactylus small and inverted. Branchial lamellæ narrow, and only present at the base of the 3 middle pairs of legs. The 3 anterior pairs of incubatory lamellæ likewise narrow; 4th pair, however, large and expanded, closing the marsupial pouch posteriorly. First pair of pleopoda rather large; the 2 succeeding pairs imperfectly developed. Penultimate pair of uropoda uniramous; last pair with the terminal joint extremely small, and hook-shaped. Telson short and broad, slightly bilobed, upper face densely spinous.

Remarks. — The present genus was established by Say as early as in the year 1817, to include a North American species, *C. tubularis.* This species has subsequently been described more in detail by Prof. S. J. Smith, and has turned out to be very different from the species referred by European authors to the genus *Cerapus.* On the other hand, a form referred by Sp. Bate to the genus *Siphonoecetes* (S. crassicornis) and subsequently found off the Norwegian coast, shows itself evidently to be congeneric with the above-named North American form. The genus agrees with the other *Corophiidæ* as regards its outward appearance, though, as above mentioned, exhibiting in the anatomical details some points of resemblance to the genus *Erichthonius.* Besides the typical form and the northern species described below, the Rev. Mr. Stebbing has recorded 2 new species from the Challenger Expedition, as *C. Sismithi* and *C. Flindersi.*

1. **Cerapus crassicornis**, (Sp. Bate).

(Pl. 217).

Siphonoecetes crassicornis, Sp. Bate, Catal. of Amph. Brit. Mus. p. 269, Pl. XLV, fig. 9.

Body much depressed and rather slender, with the metasome and urosome generally folded in beneath the posterior part of the mesosome. The 2 anterior segments of mesosome in female much shorter than the succeeding ones, in male considerably larger, especially the 2nd. Cephalon produced in front to a rather large and acuminate, horizontally projecting rostrum, lateral lobes short and obtusely rounded at the tip. Anterior pairs of coxal plates extremely small; 5th pair much larger than the others, and having the anterior lobe very broad and deep. Epimeral plates of metasome evenly rounded. Eyes small, rounded, with dark pigment. Antennæ comparatively short and stout, both pairs being densely setiferous posteriorly; the superior ones scarcely exceeding in length $^1/_4$ of the body, 1st joint of the peduncle about the length of the other 2 combined, and very much expanded, subopercular, projecting at the outer corner to a broad, triangular lobe; last joint about same length as the 2nd, but narrower, flagellum scarcely exceeding in length the last peduncular joint, and composed of only 2 articulations, the last one being extremely small. Inferior antennæ not quite as long as the superior, and somewhat more slender, but with the flagellum of same structure as in the latter. Anterior gnathopoda with the carpus expanded below to a rounded setiferous lobe, propodos rather broad in its proximal part, with the palm very oblique, and defined posteriorly by an obtuse angle carrying 2 small spines, dactylus rather elongated. Posterior gnathopoda in female scarcely larger than the anterior, basal joint somewhat lamellar, carpus but little expanded, propodos narrow oblong in form, without any distinctly defined palm; those in male exceedingly powerful, and generally bent up in a strong sigmoid curve, basal joint much expanded and broadly oval in form, carpus very large and scarcely widening distally, upper edge concave in the middle and slightly serrated posteriorly, lower one produced in the middle to a strong, anteriorly curving, dentiform projection, anterior corner terminating in a similar projection, above which occurs another somewhat smaller one, propodos much narrower than the carpus and also shorter, oblong oval in form, dactylus very large, and impinging, when closed, against the inferior projection of the carpus. Basal joint of the 2 anterior pairs of pereiopoda fully as long as the remaining part of the leg, and very broad, with the anterior edge boldly curved in its proximal part. Antepenultimate pair of pereiopoda extremely short and stout, with the meral joint expanded on both sides of the carpal one to a setiferous lobe; the 2 posterior pairs more slender and of same structure, with the basal joint but little expanded and nearly smooth. First pair of pleopoda with the basal part not expanded inside, both rami well developed, the inner one having the base considerably tumefied, and densely clothed with plumose setæ; the 2 succeeding pairs rapidly diminishing in size, and having the outer ramus very small, uniarticulate. First pair of uropoda with the outer ramus much larger than the inner, and edged outside with numerous small spinules; 2nd pair scarcely more than half as long, with the terminal joint oblong oval; last pair with the basal part rather thick, terminal joint extremely minute and hooked. Telson forming a narrow transverse plate, slightly incised in the middle, and having above 2 rows of sharp, upturned spines. Body of a uniform pale yellow colour. Length of adult female 4 mm., of male 5 mm.

Remarks. — The present form was first described by Sp. Bate from female specimens as *Siphonoecetes crassicornis*, and was subsequently recorded by the author from the Norwegian coast. It is easily distinguished both from the type species and from the 2 forms described by the Rev. Mr. Stebbing from the Challenger Expedition, by the comparatively short and stout antennæ, and by the peculiar structure of the posterior gnathopoda in the male.

Occurrence. — The only place, where I have hitherto met with this peculiar Amphipod, is outside Jædern, in a depth of 40—50 fathoms. The animal inhabits a free, membranous tube of a rather regular, short cylindrical form and open at both ends. When it withdraws itself into the tube, the large basal joints of the superior antennæ close the aperture like an operculum.

Distribution. — British Isles (Sp. Bate).

Gen. 2. **Siphonoecetes,** Krøyer, 1845.

Body slender and narrow, with the metasome and urosome very small. Cephalon but slightly produced in front, lateral lobes narrowly produced between the insertions of the 2 pairs of antennæ. Coxal plates very small, and but little different in size. Eyes more or less developed, placed at the extremity of the lateral lobes of the cephalon. Antennæ more or less densely setiferous and rather unequal, the superior ones being comparatively slender, without any accessory appendage, but with the flagellum well developed, the inferior ones much longer than the superior and also more strongly built, subpediform, with the flagellum rather short and armed at the tip with unguiform spines. Mandibular palps small, consisting of only a single joint densely setous at the tip and inner edge. Gnathopoda of the very same structure in the two sexes, and somewhat unequal, the posterior ones being considerably stronger than the anterior, and distinctly subcheliform. Anterior pairs of pereiopoda with the basal and meral joints much expanded; antepenultimate and penultimate pairs comparatively small, and of same structure, with the dactylus inverted; last pair considerably more elongated, and having the basal joint lamellarly expanded, and fringed on both edges with long, ciliated setæ. Branchial lamellæ of moderate size, wanting at the base of the posterior gnathopoda. Pleopoda well developed, with the basal part considerably expanded inside. The 2 anterior pairs of uropoda biramous, with the outer ramus the larger, and spinulous outside; last pair with the basal part laminarly expanded, terminal joint small, simple, setiferous. Telson imperfectly defined from the last segment, smooth above, and broadly rounded at the tip.

Remarks. — This genus was established in the year 1845 by Krøyer, to include an arctic species, *S. typicus.* It is intermediate between *Cerapus* and *Corophium*, resembling the former in the general habitus, but agreeing somewhat more closely with the latter in the structure of the several appendages. From both genera it may be readily distinguished by the very much elongated inferior antennæ and by the rather different structure of the gnathopoda. The genus comprises as yet only 3 species, 2 of which belong to the fauna of Norway and will be described below.

2. **Siphonoecetes Colletti,** Boeck.

(Pl. 218, fig. 1).

Siphonoecetes Colletti, Boeck, Crust. amph. bor. & arctica, p. 258.

Syn.: Siphonoecetes mucronatus, Metzger.

Body slender, depressed, nearly linear in form, with the metasome and urosome very small and combined occupying only $^1/_3$ of the length of the body. Cephalon produced in front to a short, acutely triangular rostral projection, lateral lobes much produced, and somewhat tumefied at the tip. Coxal plates edged with slender bristles; 1st pair angularly produced in front; the 3 posterior pairs rather broad in proportion to their depth, and having the anterior lobe somewhat larger than the posterior. Eyes well developed, rounded, with dark pigment. Superior antennæ considerably exceeding half the length of the body, and reaching beyond the penultimate peduncular joint of the inferior ones, joints of the peduncle nearly of equal length, flagellum not attaining half the length of the peduncle, and composed of 7 articulations. Inferior antennæ very much elongated, about equalling in length the whole body, the last 2 joints of the peduncle nearly equal-sized, flagellum much shorter than the last peduncular joint, and composed of only 3 articulations, the last 2 very small. Anterior gnathopoda with the propodos about the length of the carpus, and conically tapering distally, lower edge armed with 3 strong spines. Posterior gnathopoda rather strongly built, with the basal joint comparatively short and thick, meral joint produced at the end below to an obtuse setiferous prominence, carpus having below a very narrow lobe armed with a strong spine and several slender bristles, propodos large and oval in form, with the palm quite short, and the hind margin armed with 6 strong spines increasing in size distally. Anterior pairs of pereiopoda with the meral joint very large and expanded, nearly cordiform in outline, carpal joint in these and the 2 succeeding pairs very short. Last pair of pereiopoda rather slender, with the basal joint obliquely oval in form, propodal joint elongated, and provided outside with fascicles of long and slender setæ. Last pair of uropoda with the basal joint expanded inside to a broad setiferous lobe, terminal joint exceeding half the length of the basal one, and carrying on the obliquely truncated tip a short spine and 7 slender bristles. Body of a light, greyish white hue, and more or less densely variegated with yellowish and brown pigment; inferior antennæ with alternating yellow and brown bands. Length of adult male 8 mm.

Remarks. — This species, established by Boeck, is nearly allied to *S. typicus* of Krøyer, differing however in the somewhat more slender form of the body, and in the greater length of the superior antennæ and the less robust form of the inferior ones, both pairs being moreover less densely setous. Finally, the eyes are much more fully developed, and the lateral lobes of the cephalon broader at the tip, and more produced. The *S. mucronatus* of Metzger is indistinguishable from this species.

Occurrence. — I have met with this form occasionally in a few places on the south and west coasts of Norway, in depths ranging from 6 to 20 fathoms. It inhabits an irregular flattened tube constructed of stones and fragments of shells agglutinated together.

Distribution. — Kattegat (Meinert), West Frisian Coast (Metzger).

3. **Siphonoecetes pallidus**, G. O. Sars.

(Pl. 218, fig. 2).

Siphonoecetes pallidus, G. O, Sars, Oversigt af Norges Crustaceer I, p. 113, Pl. 6, fig. 7.

Very like the preceding species, but rather inferior in size. Cephalon with a distinct, though rather small rostral projection, lateral lobes extremely narrow, and not widening at the tip. Coxal plates about as in the preceding species. Eyes imperfectly developed, and replaced on each side by a small patch of an opaque whitish pigment. Superior antennæ scarcely exceeding half the length of the body, and not reaching to the end of the penultimate peduncular joint of the inferior ones, joints of the peduncle successively diminishing in size, flagellum about half the length of the peduncle, and composed of 6 articulations. Inferior antennæ nearly attaining the length of the body, last joint of the peduncle shorter than the penultimate one. Anterior gnathopoda with the propodos much narrower than the carpus and scarcely tapering distally; posterior ones comparatively less strong than in the preceding species, otherwise of a very similar structure. Pereiopoda likewise rather similar, except that the meral joint of the 2 anterior pairs is somewhat less broad. Last pair of uropoda with the inner expansion of the basal joint comparatively narrow, terminal joint very small. Body of a uniform pale yellowish colour, without any pigmentary ornament. Length of adult male scarcely attaining 5 mm.

Remarks. — Though very nearly allied to the preceding species, this form, in the living state, is at once distinguished by the absence of pigment, and by the inperfectly developed eyes. It is also rather inferior in size.

Occurrence. — Though nowhere in any abundance, this species would seem to occur along the whole west coast of Norway, and extends northwards to Hasvig, west Finmark. It is a true deep-water form, being only found in greater depths from 50 to 150 fathoms, especially where the bottom consists of sand and pebbles. In nearly all cases I have found it inhabiting old shells of Dentalium, to the mouth of which are agglutinated fragments of shells and pebbles.

Out of Norway it has not yet been recorded.

Gen. 3. **Corophium,** Latreille, 1807.

Body comparatively stout and much depressed, with extremely small coxal plates, the 1st pair of which are conically produced, and tipped by a number of strong ciliated bristles. Cephalon rather broad, with the lateral lobes narrow, and more or less projecting between the insertions of the antennæ. Urosome flattened, with the segments sometimes coalesced. Eyes small or imperfectly developed, placed at the base of the lateral lobes of the cephalon. Antennæ rather unequal, the superior ones slender, without any accessory appendage, but with the flagellum well developed and multiarticulate; inferior ones strong, pediform and, as a rule, much more powerful in male than in female, with the penultimate joint of the peduncle large and produced at the end posteriorly to a more or less strong spiniform projection, flagellum short, 3-articulate, and terminating in several small hooks. Anterior lip large and broad; posterior lip with the inner lobes well defined. Mandibles normally developed, but with the palp small and narrow, composed of 2 joints only, each carrying a strong, ciliated seta. First pair of maxillæ with the basal lobe subobsolete; 2nd pair with the outer lobe larger than the inner. Maxillipeds sublamellar, basal lobes narrowly produced, masticatory lobes long and narrow, with the inner edge fringed with slender spines, palp comparatively slender, with the last joint rather small, dactylus short and setous at the tip. Gnathopoda of the very same structure in the two sexes; the anterior ones rather slender, with the ischial joint forming below a rounded, densely setous expansion, carpus much elongated and densely setous below, propodos narrow, and having a distinctly defined, though very short palm. Posterior gnathopoda somewhat stronger than the anterior, meral joint forming a broad lamellar expansion, firmly connected with the lower side of the carpus, and edged with a double row of extremely elongated and finely ciliated setæ curving anteriorly, propodos sublinear, without any distinctly defined palm. The 2 anterior pairs of pereiopoda with the basal joint large and broad, and the meral joint more or less expanded. The 2 succeeding pairs comparatively stout and of same structure, both having the meral joint obliquely expanded in front, and the carpal one armed outside with 2 oblique rows of strong spines, dactylus short and inverted. Last pair of pereiopoda rather elongated and slender, with the basal joint lamellarly expanded and densely fringed on both edges with long, ciliated setæ. Branchial lamellæ well developed, wanting at the base of the posterior gnathopoda; incubatory lamellæ narrow, but edged with strong setæ. Pleopoda with the basal part greatly expanded inside. The 2 anterior pairs of uropoda with the rami comparatively short, and coarsely spinous outside; last pair with the basal joint scarcely expanded, terminal joint lamellar, setiferous. Telson small and distinctly defined from the last segment.

Remarks. — The present genus, established as early as in the year 1817 by Latreille, is easily recognizable by the comparatively stout and depressed body, the very strongly-built, pediform inferior antennæ, and the peculiar structure of the gnathopoda. The genus comprises several species both from the northern and southern hemispheres, and I have recently had an occasion of stating, that also in the Caspian Sea it is represented by a number of well marked species. To the fauna of Norway belong 4 species, to be described below.

4. **Corophium grossipes** (Linné).

(Pl. 219).

Cancer grossipes, Linné, Syst. Naturæ II, p. 1055.

Syn.: Oniscus volutator, O. Fr. Muller.
» Astacus linearis, Pennant.
» Gammarus longicornis, Fabricius.
» Corophium longicorne, Latreille.

Body moderately slender, with the segments of urosome well defined. Cephalon about equalling in length the first 2 segments of mesosome combined, rostral projection very slight, lateral lobes small and narrowly rounded at the tip. First pair of coxal plates rather produced in front, and tipped with about 5 strong setæ. Eyes very small, but distinct, with dark pigment. Superior antennæ in female considerably exceeding $^1/_3$ of the length of the body, in male nearly attaining half its length, 1st joint of the peduncle not much expanded, and longer than the other 2 combined, its outer edge in female being armed with 2 strong spines, in male minutely serrulate, flagellum nearly as long as the peduncle, and composed of 12—14 articulations. Inferior antennæ in female much stronger than the superior, and about half the length of the body, penultimate joint of the peduncle produced near the end below to a short dentiform projection defined above by a deep sinus, last peduncular joint nearly as long as the penultimate one, and quite unarmed, flagellum shorter than that joint; inferior antennæ in male much larger than in female, equalling in length, when fully extended, the whole body, otherwise of much the same structure as in the latter. Anterior gnathopoda with the propodos a little shorter than the carpus, and but very slightly widening distally, palm nearly transverse. Posterior gnathopoda with the propodos about the length of the carpus and meral joint combined, dactylus rather elongated, and perfectly smooth. Anterior pairs of pereiopoda with the meral joint moderately expanded and shorter than the last 2 joints combined, dactylus scarcely longer than the propodal joint. Penultimate pair with the meral joint fringed on both edges with numerous ciliated setæ. Last pair moderately elongated, with the basal joint rather expanded and oval in form. Last pair of uropoda with the basal joint somewhat broader than the terminal one, the latter rounded oval in form and rather densely setous. Telson subtriangular, tapering to an obtuse point. Body whitish, variegated along the back and on the inferior antennæ with a dark brown pigment. Length of adult female 6 mm., of male about the same.

Remarks. — This is the species first described, and may therefore be regarded as the type of the genus. It has generally been recorded under the specific name *longicorne*, proposed by Fabricius, but the name *grossipes* is much the older, and must be retained for the species. The *Cancer volutator* of O. Fr. Muller, as also *Astacus linearis* of Pennant, are merely synonyms. The species may be readily distinguished from the other northern forms by the structure of the inferior antennæ in both sexes.

Occurrence. — The only place where I have met with this form is in the Christianiafjord, at Moss; but Boeck collected it also at Haugesund, west coast of Norway.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzel.), Kattegat (Meinert), the Baltic (Lindstrom), Dutch coast (Hoek), coast of France (Chevreux), Adriatic (Heller).

5. **Corophium crassicorne**, Bruzel.

(Pl 220).

Corophium crassicorne, Bruzelius, Skand. Amph. Gamm. K. Svenska Vet. Akad. Handl. 111, p. 15, Pl. 1, fig. 2.

Syn.: Corophium spinicorne, Sp. Bate ♀.

Body somewhat more strongly built than in the type species, and having the segments of urosome completely fused together. Cephalon with a distinctly defined, acute rostrum, lateral lobes very much produced and acuminate at the tip. First pair of coxal plates with only 3 apical setæ. Eyes small, rounded, pigment dark brown with a whitish coating. Antennæ in female comparatively short and nearly equal in length, scarcely $^1/_3$ the length of the body, the superior ones with the 1st joint of the peduncle rather large and expanded, about equalling in length the other 2 combined, outer edge armed with a row of about 6 strong spines, inner one with 4 recurved spines at the base, last joint scarcely more than $^1/_3$ the length of the 2nd, flagellum much shorter than the peduncle, and composed of only 6 articulations. Inferior antennæ in female rather stout, with the penultimate joint of the peduncle forming inside a lamellar expansion armed with a row of about 8 spines successively increasing in size distally, last peduncular joint scarcely more than half as long, and having in the middle of the posterior edge a strong spine; inferior antennæ in male very strongly developed, though scarcely attaining the length of the body, penultimate joint of the peduncle large and tumid, without any spines, but produced at the end posteriorly to a strong dentiform projection, accompanied by another somewhat smaller projection, last peduncular joint much shorter and narrower than the penultimate one, and having inside 2 short dentiform projections, the one near the base, the other at the end. Gnathopoda nearly as in *C. grossipes*, except that the dactylus of the posterior ones is armed near the tip with a lateral denticle. Anterior pairs of pereiopoda with the meral joint very much expanded, and the carpal one very short, dactylus longer than the propodal joint. Last pair of pereiopoda somewhat more slender than in *C. grossipes*, otherwise of a very similar structure. Last pair of uropoda with the terminal joint oblong oval in form, and nearly twice as large as the basal one. Telson obtusely rounded at the tip. Body whitish, variegated with a light brown pigment. Length of adult female 5 mm., of male about the same.

Remarks. — This species was first described by Bruzelius from the Bohuslän coast, and has subsequently been recorded from several other places by different authors. The *C. spinicorne* of Sp. Bate is without any doubt the female of this species. On the other hand, the *C. acherusicum* of Costa, which is believed by Heller and Boeck to be the same species, seems to me to be different. The species is easily distinguished from *C. grossipes* by the rather different structure of the antennæ in both sexes, as also by the distinctly projecting rostrum and the acuminate lateral lobes of the cephalon, and finally, by the segments of the urosome being fused together.

Occurrence. — The species occurs along the whole Norwegian coast, from the Christianiafjord to Vadsø, in depths varying from 6—20 fathoms, muddy bottom, and is in some places found even in great abundance.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux); Jan Mayen (Norw. North. Atl. Exped.).

6. **Chorophium Bonelli,** M.-Edw.

(Pl. 221, fig. 1).

Chorophium Bonelli, Milne-Edwards, Ann. d. Sc. nat. XX, p. 385.

Body somewhat robust, with the segments of urosome fused together. Cephalon without any rostrum, lateral lobes short and rounded at the tip. Coxal plates about as in *C. crassicorne.* Eyes comparatively larger than in the 2 preceding species, with very dark pigment. Superior antennæ about equalling in length $^1/_3$ of the body, 1st joint of the peduncle shorter than the other 2 combined, and not very much expanded, being armed on the outer edge with 3 spines, flagellum somewhat exceeding half the length of the peduncle, and composed of 6 articulations. Inferior antennæ in female not very strong and scarcely longer than the superior, basal joint somewhat produced inside and tipped by a spine; antepenultimate peduncular joint armed with 2 spines; penultimate joint not at all expanded, being nearly cylindric in form, and carrying on the posterior edge 3 strong spines; last joint a little shorter and armed with a single spine beyond the middle of the posterior edge. Anterior gnathopoda with the propodos slightly widening distally, and having the palm somewhat oblique; posterior gnathopoda with the dactylus bidentate at the tip. Anterior pairs of pereiopoda with the meral joint rather expanded, and the carpal one very short, dactylus about the length of the last 2 joints combined. Last pair of pereiopoda very slender and elongated, with the basal joint lamellarly expanded and the outer ones very narrow. Last pair of uropoda with the terminal joint rather large and broadly oval in form. Telson twice as broad as it is long, and having the tip transversely truncated. Body whitish, variegated along the back with a very dark pigment forming transverse bands. Length of adult female 6 mm.

Remarks — I have been in some doubt about the identification of this species, but it seems on the whole to agree rather well with the short description given by Milne-Edwards of his *C. Bonelli.* In the complete fusion of the segments of the urosome, this species agrees with *C. crassicorne*, but is easily distinguished by the want of a rostrum, by the short, rounded, lateral lobes of the cephalon, the comparatively larger and more darkly pigmented eyes, and by the rather different structure of the antennæ. In the living state the animal may also at once be recognized by the very dark pigment ornamenting the body. It is very strange, that I have never met with males of this form, though I have collected the species in several places. Perhaps the sexual difference in this species is so very slight as to escape attention.

Occurrence. — The species would seem to occur both on the south and west coasts of Norway, at least to the Trondhjemsfjord, and is generally found in depths varying from 6—10 fathoms.

Distribution. — British Isles (Sp. Bate), coast of France (Milne-Edwards).

7. **Corophium affine,** Bruzel.

(Pl. 221, fig. 2).

Corophium affine, Bruzelius, Skand. Amph. Gamm. p. 16.

Syn: Corophium tenuicorne, Norman.

Body somewhat more slender than in the 2 preceding species, with the segments of urosome well defined. Cephalon but very slightly projecting in front, lateral lobes rather produced, and terminating in an acute point. Eyes imperfectly developed, and replaced on each side by a small patch of an opaque white pigment. Superior antennæ rather slender and elongated, 1st joint of the peduncle slightly expanded at the base, with 4 slender spines on the outer edge, and at the base inside 6 recurved spines; 2nd joint very slender and about the length of the 1st, flagellum not attaining half the length of the peduncle, and composed of 6 articulations. Inferior antennæ in female rather feeble and scarcely as long as the superior, basal joint produced inside to a long conical projection tipped with a spine, antepenultimate peduncular joint armed with a single spine, penultimate joint simple cylendrical in form, with 3 slender spines on the posterior edge, last joint much shorter, and having 2 spines on the hind edge and 2 others inside; inferior antennæ in male very strongly developed, with the penultimate joint of the peduncle exceedingly large and tumid, nearly fusiform in shape, and produced at the end posteriorly to a dentiform process accompanied by a slight triangular projection, last joint not nearly attaining half the length of the former and rather narrow, being produced at the end inside to a dentiform projection. Anterior gnathopoda with the propodos very narrow, not at all widening distally, and having the dactylus, as in the posterior ones, bidentate at the tip. Anterior pairs of pereiopoda with the meral joint not very much expanded, dactylus very slender, exceeding in length the last 2 joints combined. Last pair of pereiopoda exceedingly slender and elongated, with the basal joint but very little expanded, and the posterior edge slightly concave. The 2 anterior pairs of uropoda with the terminal spines elongated to an unusual extent; last pair very narrow, with the terminal joint linear and setous only at the tip. Telson nearly as long as it is broad, tip narrowly truncated. Body of a uniform pale yellowish hue, without any pigmentary ornament. Length of adult male 4 mm.

Remarks. — This species, established by Bruzelius, is easily distinguishable from any of the other species by the absolute want of pigmentary ornament, the imperfectly developed eyes, and the structure of the antennæ in the two sexes. Moreover the last pair of pereiopoda are markedly distinguished by the narrow form of the basal joint, and by the fact that the last pair of uropoda are unusually slender. The *C. tenuicorne* of Norman is without any doubt the female of this species.

Occurrence. — I have met with this form not infrequently in several places both of the south and west coasts of Norway, as also in the Trondhjemsfjord, in depths ranging from 10 to 30 fathoms. It extends northwards to the Lofoten islands.

Distribution. — Bohuslän (Bruzelius), Kattegat (Meinert), the east Frisian coast (Metzger), Shetland Isles (Norman).

Gen. 4. Unciola, Say, 1818.

Syn.: Glauconome, Krøyer.

Body more or less slender, depressed, with small, angular, coxal plates. Cephalon produced in front to a distinct rostrum, lateral lobes small. Eyes either distinct or imperfectly developed. Superior antennæ provided with an accessory appendage, and longer than the inferior; the latter more strongly built in male than in female, having in the former a very movable articulation between the penultimate and antepenultimate joints of the peduncle, flagellum multiarticulate. Mandibular palps well developed, 3-articulate. Maxillipeds with the masticatory lobes short and broad, armed inside with strong flattened spines. Gnathopoda rather unequal, the anterior ones being much stronger than the posterior and somewhat differing in male, propodos large and broad, subcheliform. Pereiopoda comparatively slender, the 3 posterior pairs successively increasing in length, and having the basal joint more or less expanded. Pleopoda normally developed. Last pair of uropoda very small, with the basal joint expanded inside. Telson comparatively large, lamellar, rounded.

Remarks. — This genus was established by Say as early as in the year 1818 to include a North American species, *U. irrorata.* The genus *Glauconome* of Kroyer is undoubtedly identical with that of Say. The genus is somewhat allied to *Corophium*, yet differs very markedly in the presence of a distinct accessory appendage to the superior antennæ, as also in the structure of the gnathopoda. Besides the typical species and the 2 Norwegian forms described below, a 3rd species, *U. petalocera*, was detected during the Norwegian North Atlantic Expedition, and 2 additional Arctic species have been described by Dr. Hansen as *U. crassipes* and *U. laticornis.*

8. **Unciola leucopis**, (Krøyer).

(Pl. 222).

Glauconome leucopis, Krøyer, Nat. Tidsskr. 2 R. Bd. 1, 1 p. 461.

Body comparatively strongly built, with the segments of mesosome sharply defined and transversely sulcate, those of metasome having on each side a rounded prominence. Cephalon rather broad, and produced in front to an acute rostrum, lateral lobes somewhat projecting between the antennæ, and obtusely rounded at the tip. Anterior pairs of coxal plates acutely produced in front; 5th pair with the anterior lobe triangular in form and deeper than the preceding pairs, its inferior edge fringed with ciliated setæ. The 2 anterior pairs of epimeral plates of metasome acutely produced at the lateral corners; last pair somewhat less deep than the preceding pair, and having the lateral corners produced to a strong recurved dentiform projection defined above by a deep sinus, posterior edge forming above the sinus a rounded setiferous expansion. Eyes imperfectly developed, and replaced on each side by a small patch of an opaque whitish pigment. Superior antennæ nearly equalling in length $^2/_3$ of the body, 2nd joint of the peduncle the longest, 3rd joint exceeding half its length, flagellum somewhat shorter than the peduncle, and composed of about 16 articulations, accessory appendage well developed, though rather narrow, and 5-articulate. Inferior antennæ somewhat shorter than the superior, but much more strongly built, especially in the male, antepenultimate joint in that sex very broad and expanded at the end to a rounded lobe, penultimate joint considerably thickened at the base, flagellum nearly half the length of the peduncle, and composed of about 10 articulations. Both pairs of antennæ provided posteriorly with scattered fascicles of slender bristles. Maxillipeds having the 1st segment of the basal part expanded at the end on each side to a linguiform, ciliated lobe. Anterior gnathopoda in female rather powerful, with the carpus comparatively short and produced below to a small, setiferous lobe, propodos large and broad, with the palm rather oblique, and defined below by a distinctly projecting angle armed with several strong spines, dactylus densely setous outside and minutely denticulated inside; anterior gnathopoda in male still more strongly built than in female, with the propodos comparatively broader, and expanded below to a rounded lobe defining the palm, posteriorly, the latter minutely serrulate and distinctly angular above the middle. Posterior gnathopoda of same structure in the two sexes, being much feebler than the anterior and densely setous, propodos narrow oblong and about the length of the carpus, palm very short and transverse. Pereiopoda moderately slender, the 3 posterior pairs with the the basal joint slightly expanded, and fringed on both edges with strong, ciliated setæ. The 2 anterior pairs of uropoda rather stout, with the rami nearly equal-sized and terminating each with a strong spine; last pair very small, with the basal joint expanded inside to a rather broad lobe, carrying at the outer corner 4 setæ and projecting far beyond the terminal joint, the latter extremely minute and tipped with 4 bristles. Telson about as long as it is broad, with a slender spine on each side, tip evenly rounded. Body of a uniform yellowish grey colour, without any pigmentary ornament. Length of adult female 13 mm., of male about the same.

Remarks. — This form was first described by Krøyer as *Glauconome leucopis* from Greenland specimens, and was subsequently also recorded from the Norwegian coast. I have formerly, on the authority of Prof. Sidn. Smith, identified it with *Unciola irrorata* of Say. Having, however, recently had an opportunity of examining a specimen of the latter form, I find both to be evidently specifically distinct, the North American species differing, among other things, in its well-developed and darkly pigmented eyes, whereas the northern species fully deserves its specific name, the eyes being replaced by patches of an opaque whitish pigment. From the other Norwegian species it is very easily distinguished by its large size and more robust form of body.

Occurrence. — The only place on the Norwegian coast, where I have hitherto met with this form, is in the Varangerfjord, at Vadsø, and here it was also previously collected by Dr. Danielsen and my late father. It occurred in depths varying from 90 to 120 fathoms, muddy bottom.

Distribution. — Arctic Ocean: Greenland (Krøyer), Spitsbergen (Goës), the Barents Sea (Hoek), the Kara Sea (Hansen), the Siberian polar Sea (Stuxberg).

9. **Unciola planipes**, Norman.

(Pl. 223).

Unciola planipes, Norman, Report of deep-sea dredging off the coast of Northumberland and Durham, p. 3, Pl. VIII, figs. 9—15.

Syn.: Glauconome Krøyeri, Boeck ♂.
» Glauconome Steenstrupi, Boeck ♀.

Body considerably more slender than in the preceding species, with the segments quite smooth above; 2nd segment of mesosome in male with a very long ventral spine. Cephalon produced in front to a distinct, somewhat flattened rostrum, lateral corners angular and but slightly projecting. First pair of coxal plates conically produced in front; 2nd pair deeper than the other pairs, their outer part being in female obtusely rounded, in male angularly produced. Epimeral plates of metasome comparatively small, each being produced below to a sharp, recurved point. Eyes nearly obsolete, being replaced on each side by an irregular patch of whitish pigment. Superior antennæ very slender, and equalling in length the cephalon and mesosome combined, 2nd joint of the peduncle considerably longer than the 1st, 3rd joint very short, scarcely exceeding in length $^1/_3$ of the 2nd, flagellum about the length of the peduncle, and composed of about 14 articulations, accessory appendage very small, biarticulate, with the last articulation extremely minute. Inferior antennæ in female not very strong, and considerably shorter than the superior, penultimate joint of the peduncle a little longer than the last one, and rather narrow, flagellum scarcely longer than the last peduncular joint and 6-articulate; inferior antennæ in male much more strongly developed, subpediform, with the penultimate and antepenultimate joints of the peduncle considerably thickened and connected by a very movable articulation. Anterior gnathopoda in female less strongly built than in the preceding species, with the carpus of moderate size and broadly expanded below, propodos oval triangular in form, with the palm very oblique and nearly straight, being defined posteriorly by an obtuse angle; those in male considerably stronger, with the palm of the propodos distinctly bisinuate. Posterior gnathopoda slender and of same structure in the two sexes, though somewhat larger in the male, carpus very large and densely setous on the lower edge and the distal part of the upper one, propodos conparatively small, being much shorter than the carpus, and gradually tapering distally, without any palm, dactylus extremely minute. Pereiopoda very slender, the 3 posterior pairs with the basal joint rather narrow and nearly smooth. Branchial lamellæ very small. The 2 anterior pairs of uropoda less robust than in the preceding species, and having the rami tipped by several strong spines; last pair with the inner expansion of the basal joint rather narrow and only armed with a single spine, terminal joint projecting beyond the former and sublinear in form, with 5 long apical bristles and another in the middle of the outer edge. Telson rounded, with 2 slender spines on either side, accompanied by a delicate bristle. Body of a pale yellowish hue, with more or less distinct light orange bands across the segments, and having moreover along the sides a series of irregular whitish patches produced by some opaque matter lying inside the integuments. Length of adult female 5 mm., of male 6 mm.

Remarks. — There cannot in my opinion be any doubt that the 2 forms described by Boeck as *Glauconome Krøyeri* and *G. Steenstrupi* are only the male and female of the same species, and that this is identical with Norman's *Unciola planipes.* It is easily distinguished from the preceding species, not only by its very inferior size and more slender form of body, but also by several well-marked anatomical characteristics mentioned in the above diagnosis. The male looks very like a *Corophium* owing to the unusually strong development of its inferior antennæ.

Occurrence. — The species would seem to occur along the whole Norwegian coast, from the Christianiafjord to Vadso, and is in some places rather abundant. It is, however, only found in greater depths, ranging from 50 to 300 fathoms.

Distribution, — British Isles (Norman), Kattegat (Meinert), Greenland (Hansen).

Gen. 5. Neohela, Sidn. Smith, 1881.

Syn.: Hela, Boeck.

Body very slender and tapering posteriorly, with the metasome poorly developed and the coxal plates very small. Cephalon comparatively short, and without any distinct rostrum. Eyes present or subobsolete. Antennæ exceedingly elongated, with long and slender flagella, the superior ones provided with a distinct accessory appendage. Oral parts on the whole normal. Gnathopoda rather large, subsimilar, with the carpus and propodos lamellarly expanded, the latter comparatively short and distinctly subcheliform. Pereiopoda long and slender, the 3 posterior pairs successively increasing in length, and having the basal joint not at all expanded, dactylus of the last 2 pairs slender, falciform. Anterior pair of branchial lamellæ very small, the others of moderate size; incubatory lamellæ only present at the base of the 3 middle pairs of legs. Pleopoda unusually slender and feeble. The 2 anterior pairs of uropoda normally developed, with slender, spinous rami; last pair very small, with the basal joint not expanded, terminal joint elongated, linear. Telson imperfectly defined from the last segment, smooth, tapering distally.

Remarks. — The present genus was established by Boeck in the year 1860, but as the name he proposed, *Hela,* was already appropriated, Prof. Sidn. Smith changed it, in the year 1881, to *Neohela.* By a mistake, I spelt it in my «Oversigt» as *Helella.* The genus is a very distinct one, and Boeck, who at first placed it in his subfamily *Corophina*, found it subsequently appropriate to regard it as the type of a separate subfamily, *Helainæ*. As, however, I am unwilling to accept any subfamilies, it is here retained within the family *Corophiidæ*. Besides the northern form described below, Prof. Sidn. Smith has recorded another nearly-allied species from the coast of New England as *N. phasma*. On the other hand, the form described by the Rev. Mr. Stebbing from the Challenger Expedition as *N. serrata* does not belong to this genus, but is now believed by that author to be more properly a species of the genus *Melphidippa*.

10. **Neohela monstrosa**, (Boeck).

(Pl, 224).

Hela monstrosa, Boeck, Crust. Amph. bor. & arct. p. 181.

Body extremely slender and elongated, with the anterior part of the body distinctly depressed, metasome very narrow, and nearly cylindric in form. The 4 anterior segments of mesosome having the lateral parts somewhat expanded and angularly produced in front, those of the 3 posterior segments slightly reflexed, and obtusely truncated at the tip. Urosome rather slender, about equalling in length the last 2 segments of metasome combined. Cephalon very short and broad, scarcely longer than the 1st segment of mesosome, and almost transversely truncated in front, lateral parts produced on each side to a strong spiniform projection. Coxal plates extremely small and far apart, the 3 anterior pairs terminating in front in an acute point. Epimeral plates of metasome nearly obsolete. Eyes imperfectly developed, and replaced on each side by a small patch of an opaque whitish pigment. Superior antennæ very slender and exceeding in length the whole body, 1st joint of the peduncle comparatively short, 2nd very elongated, 3rd not ataining half the length of the latter, flagellum half as long again as the peduncle, and composed of numerous short articulations, accessory appendage slender, and nearly as long as the last peduncular joint, being composed of about 10 articulations. Inferior antennæ still longer than the superior, basal joint rather thick, and produced outside to a strong spiniform projection, the last 2 joints of the peduncle very much elongated, and, like the peduncular joints of the superior antennæ, clothed all round with short spines, flagellum somewhat exceeding the peduncle in length, and, like that of the superior ones, filiform, multiarticulate. Anterior gnathopoda in female with the carpus oval in form and densely setous, propodos likewise densely setous, and scarcely longer than the carpus, but considerably expanded distally, being nearly triangular in form, palm almost transverse, with two small dentiform projections in the middle, and defined below by a somewhat more projecting tooth, dactylus much longer than the palm and setous outside; anterior gnathopoda in male of a similar structure to that in the female, but comparatively more strongly built, with the propodos larger and the projections of the palm much more prominent. Posterior gnathopoda of same appearance in the two sexes, being somewhat smaller than the anterior, propodos rather expanded and oval triangular in form, with the palm rather oblique, and without distinct projections, being defined below by a rounded corner, dactylus slender and elongated. The 2 anterior pairs of pereiopoda subequal and very slender, with the last 2 joints of about same length, and edged inside with small spines and slender bristles, dactylus of moderate size. Antepenultimate pair about as long as the latter, and having the carpal joint much shorter than the propodal one and densely setous in front, dactylus comparatively small. The 2 posterior pairs considerably more elongated, with the meral joint much prolonged and the carpal one quite short, dactylus strongly developed and falciform. The 2 anterior pairs of uropoda with the rami narrow linear in form, and fringed on both edges with numerous spines; last pair very small, with the terminal joint nearly 3 times as long as the basal one, and edged with a number of delicate bristles. Telson quite unarmed, and gradually tapering distally, tip obtusely pointed. Body semipellucid, and of a uniform yellowish hue. Length of adult female 25 mm., of male 28 mm.

Remarks. — This peculiar Amphipod cannot be confounded with any of the other northern Amphipoda, exhibiting, as it does, a most strange appearance by its long and slender body, and extremely elongated antennæ and legs. From the North American species described by Prof. S. Smith, it is easily distinguished, among other things, by the want of distinctly developed eyes.

Occurrence. — Boeck found a single, somewhat imperfect specimen of this form in the Christianiafjord, at Moss. I have myself dredged it occasionally both off the west and north coasts of Norway in depths ranging from 100 to 300 fathoms; but, as the animal is extremely brittle, it is very seldom that any specimen is taken with all its appendages uninjured.

Distribution. — Skaggerak (Gunhilds Exped.), Kattegat (Meinert), off Spitsbergen and the Færoe Isles (Norw. North. Atl. Exped.).

Fam. 24. Cheluridæ.

Body robust, with small coxal plates and the cephalon large and tumid. Urosome having the segments coalesced. Eyes distinct. Antennæ short and stout, the superior ones with an accessory appendage, the inferior ones with the flagellum transformed to a squamiform plate. Buccal area strongly prominent. Oral parts on the whole normal. Gnathopoda of same structure in the two sexes, both pairs being minutely chelate. Pereiopoda short and stout, subequal. Branchial lamellæ of moderate size; incubatory lamellæ narrow. Pleopoda with the basal part strongly expanded inside. Uropoda very different in shape; 1st pair normal, 2nd pair originating above the latter, and having the basal part lamellarly expanded; last pair with the inner ramus rudimentary, outer ramus large, foliaceous. Telson entire.

Remarks. — This family was established in the year 1847 by Allman, to include the peculiar genus *Chelura* of Philippi, which exhibits several very striking characteristics distinguishing it from all other known Amphipoda, and partly reminding of certain forms of Isopoda of the Sphæromid group, as for instance the genus *Nesæa*. Only the above named genus is at present known.

Gen. Chelura, Philippi, 1839.

Syn: Nemertes, White.

Body broad, subdepressed, with the metasome very short, and having the last segment produced dorsally. Urosome flattened, and more elongated in male than in female. Cephalon without any trace of a rostral prominence, but with the lateral corners well defined. Inferior antennæ much stronger than the superior, and having the flagellum spatulate and densely fringed with bristles. Anterior gnathopoda shorter and stouter than the posterior ones. The 3 posterior pairs of pereiopoda successively increasing in length, and having the basal joint but slightly expanded. First pair of uropoda extended beneath the urosome: 2nd pair having a subdorsal situation, basal expansion of different form in the two sexes, rami very short; last pair with a slight rudiment of an inner ramus, outer ramus much longer in male than in female. Telson acutely produced at the tip.

Remarks. — This genus was established in the year 1839 by Philippi, and was, as above stated, subsequently considered by Allman to be the type of a distinct family. The genus *Nemertes* of White is identical with the present one. It does not at present include more than a single species, to be described below.

Chelura terebrans, Philippi.

Chelura terebrans, Philippi, Arch. f. Naturgeschichte Vol. V, p. 120, Pl. III, fig. 3.

Syn.: Nemertes nesæoides, White.
» Chelura pontica, Czerniawsky.

Body short and stout, with the back broadly vaulted and slightly setiferous at the posterior border of the segments. Last segment of metasome produced dorsally to a conical, posteriorly curving projection, much longer in male than in female. Urosome depressed, quadrangular in shape, being in female about $^1/_3$ as long as the remaining part of the body, in male nearly half as long. Cephalon about the length of the first two segments of mesosome combined, front evenly deflexed, without forming any trace of a projection, lateral lobes evenly rounded, postantennal corners well defined. Coxal plates successively somewhat diminishing in depth; 1st pair rounded quadrangular in form; 4th pair nearly twice as broad as they are deep, the 2 succeeding pairs bilobate, with the posterior lobe rather projecting and setiferous. Epimeral plates of metasome very short, and angular at the lateral corners. Eyes placed close to the lateral lobes of the cephalon, rather large, rounded, with dark pigment. Superior antennæ scarcely exceeding in length $^1/_5$ of the body, joints of the peduncle successively diminishing in size, flagellum about the length of the last 2 peduncular joints combined, and composed of 6 articulations rather densely clothed with slender bristles, accessory appendage small, biarticulate. Inferior antennæ much longer and more strongly built than the superior ones, being generally strongly curved, the outer 3 joints of the peduncle nearly equal-sized, flagellum consisting of a large spatulate joint, densely setiferous on both edges and tipped with one or two rudimentary articulations. Anterior gnathopoda with the propodos considerably longer than the carpus, and slightly curved, being fringed on the upper edge with several ciliated setæ, chela rather small, with the thumb broader than the dactylus. Posterior gnathopoda more slender and elongated, with the propodos scarcely longer than the carpus, chela extremely minute. Anterior pairs of pereiopoda with the basal joint somewhat expanded; the 3 posterior pairs with the basal joint scarcely broader than that of the anterior pairs, but fringed posteriorly with a number of strong ciliated setæ, meral joint rather expanded and likewise edged posteriorly with strong, ciliated setæ, carpal joint in all pairs rather short, propodal one slightly tapering, dactylus short and curved. First pair of uropoda with the rami scarcely half the length of the basal part, inner ramus somewhat broader than the outer, and armed at the end with 3 short spines; 2nd pair with the basal expansion in female very broad, subquadrate, and coarsely serrated at the edge, in male linguiform produced and densely hirsute, rami in both sexes very short, sublamellar, and having at the end 5 or 6 serrations; last pair with the inner ramus extremely minute and concealed by the outer, the latter in female very broad, oblong oval in form, and serrated on the edge, in male about twice as long, and narrowed distally. Telson subcarinated dorsally, outer part tapering to an acute point. Colour light brown. Length of adult female 5 mm., of male 6 mm. (excluding the last pair of uropoda).

Remarks. — This peculiar Amphipod was first described by Philippi, and has subsequently been recorded by several other authors. The *Nemertes nesæoides* of White is identical with this form, and the specific name proposed by that author refers to the external resemblance, in the configuration of the posterior part of the body, to the genus *Nesæa*, belonging to the Sphæromid group of Isopoda. The *Chelura pontica* of Czerniawsky does not seem to differ in any points from the typical species. As to the uropoda, Boeck erroneously describes the 2nd pair as the 1st, and *vice versa.*

Occurrence. I have myself met with only a single female specimen of this form, which was found together with other Amphipoda collected in the Christianiafjord. Boeck found it in great numbers in a submerged log at Moss, and there are also in our Museum some specimens from Karmø, west coast of Norway. In every case the habit of this animal is stated to be of a similar kind to that of *Limnoria*, it being, in nearly every instance, found in submerged timber, in which, like that animal, it burrows, tearing the loose, woody substance.

Distribution. — British Isles (Sp. Bate), Dutch coast (Hoek), Adriatic (Philippi). Black Sea (Czerniawsky), Atlantic coast of North America (S. Smith).

Fam. 25. Dulichiidæ.

Body more or less slender, with very small coxal plates. Metasome generally poorly developed; urosome having the last segment generally imperfectly defined. Antennæ elongated, setous; accessory appendage of the superior ones either present or wanting. Anterior lip rather broad, and more or less distinctly bilobed at the tip; posterior lip with the inner lobes well defined. Oral parts otherwise normal. Gnathopoda more or less unequal, the posterior ones in male, as a rule, much larger than in female. The 3 posterior pairs of pereiopoda generally very much elongated, with the basal joint narrow, and the dactylus very strong. Pleopoda with the basal part not expanded inside. Last pair of uropoda, and sometimes also the penultimate pair, wanting, or only present as slight rudiments. Telson entire, squamiform.

Remarks. — The present family comprises a number of Amphipoda of rather different appearance, but agreeing in the more or less imperfect development of the urosome and its appendages. In all forms the last pair are entirely wanting, or only present as very slight rudiments, and in some forms even the penultimate pair are quite rudimentary. One of the genera, *Dulichia*, was placed by Sp. Bate together with the *Caprellidæ* in his division «*Aberrantia*», whereas the genus *Lætmatophilus* was referred to the *Corophiidæ*. Besides these 2 genera, Boeck has added 2 other northern genera, viz, *Xenodice* and *Paradulichia*. The genus *Platophium* of Dana ought also to be comprised within this family, though it has the last segment of the urosome well defined.

Gen. 1. Lætmatophilus, Bruzel.

Syn.: Cyrtophium Sp. Bate (part).

Body robust, subdepressed, with a very movable articulation between the first two segments of mesosome. Metasome and urosome comparatively small. Cephalon with the frontal part rather produced and narrowly truncated at the tip, lateral lobes very slight, with a dentiform projection behind. First pair of coxal plates small, quadrangular, the 3 succeeding pairs broader than they are deep. Eyes distinct and somewhat protuberant. Antennæ very strong, subpediform, and densely setiferous, the superior ones without any accessory appendage, flagellum in both pairs rather short and only composed of a restricted number of articulations. Mandibular palps large, with the terminal joint lamellarly expanded and densely setiferous. First pair of maxillæ with the basal lobe rudimentary. Maxillipeds well developed, with the masticatory lobes much larger than the basal ones. Gnathopoda very unequal, the anterior ones rather feeble, the posterior ones powerfully developed, and differently shaped in the two sexes. All pereiopoda alike both in size and structure, being rather elongated, and terminating in a very strong claw-like dactylus. Branchial lamellæ very small; incubatory lamellæ large and broad. Pleopoda rather feeble. First pair of uropoda well developed, with the inner ramus much longer than the outer; 2nd pair quite rudimentary, forming on each side only a small, unarmed lamella; last pair entirely wanting. Telson rounded.

Remarks. — This genus was established in the year 1859 by Bruzelius, who pointed out its relation to the genus *Dulichia*, and proposed to unite both within the family *Dulichiidæ*. Sp. Bate referred the species of Bruzelius to the genus *Cyrtophium* of Dana, which is the same as *Platophium* of the same author. In external appearance the species of the latter genus bear, it is true, a strong resemblance to those of the genus *Lætmatophilus*; but they are markedly distinguished by the much fuller development of the urosome and its appendages. The genus comprises 2 very nearly allied Norwegian species, to be described below. The Rev. Mr. Stebbing has also added another species from the Challenger Expedition, as *L. purus*.

Lætmatophilus tuberculatus, Bruzel.

(Pl. 226).

Lætmatophilus tuberculatus, Bruzelius, Skand. Amph. Gamm.; Kgl. Svenska Vetensk. Akad. Handl. new. series, Vol. III. p. 11, Pl. 1, fig. 1.

Syn.: Cyrtophium Darwini, Sp. Bate.
» — tuberculatum, Sp. Bate.

Body short and stout, with the metasome and urosome generally folded in beneath the mesosome; the latter in female much broader than in male. Cephalon nearly twice as long as the 1st segment of mesosome, and having dorsally a small rounded tubercle. All segments of mesosome transversely sulcated above, and having the lateral parts somewhat expanded; 1st segment with 2 succeeding dorsal tubercles; 2nd segment with a slight tubercle in front of the sulcus; the succeeding segments scarcely tubercular, but having the dorsal contour somewhat rugged. First pair of coxal plates in both sexes very small, the 3 succeeding pairs in female comparatively broader than in male. Epimeral plates of metasome very small and rounded. Eyes slightly protuberant, rounded, with light yellowish pigment. Superior antennæ about equalling in length $^3/_4$ of the body, 1st joint of the peduncle the shortest, the other 2 nearly equal-sized, flagellum scarcely as long as the last peduncular joint, and composed of 3 articulations, the 1st of which is 3 times as long as the other 2 combined. Inferior antennæ a little longer than the superior, and somewhat stronger in male than in female, last joint of the peduncle the longest, flagellum much shorter than that joint, and biarticulate, last articulation extremely small. Anterior gnathopoda with the meral joint greatly instricted at the base, and forming below a rounded, setiferous lobule, carpus rather large and expanded, propodos about the length of the latter, and gradually widening distally, palm somewhat oblique and defined below by an obtuse angle. Posterior gnathopoda in female much stronger than the anterior, basal joint forming at the end outside an acute lappet, meral joint produced below to a long acuminate projection, carpus very small, propodos large and expanded, rounded oval in form, with the palm arcuate, and defined by a short dentiform projection, dactylus strong and curved; posterior gnathopoda in male still more powerfully developed, meral joint less produced than in female, propodos exceedingly large and somewhat curved, oblong oval in form, with numerous, partly ciliated setæ below, palm not defined, but produced in front to a broad, slightly denticulated lobe, below which is a short spiniform projection, dactylus extremely strong and sharply bent at the base, impinging, when closed, against the lower face of the propodos. Pereiopoda of exactly same structure, though the 2 anterior pairs, as usual, curve in a manner opposite to the 3 posterior ones, basal joint in all narrow linear, meral joint comparatively short, carpal and propodal ones elongated, dactylus very strong falciform. First pair of uropoda with the inner ramus very slender and linear, being twice as long as the outer, both edged with short spines; 2nd pair forming on each side an oval, unarmed lamella, partly covered by the telson; the latter evenly rounded and quite smooth. Colour light yellowish. Length of adult female 4 mm., of male about the same.

Remarks. — This form was first described by Bruzelius from the coast of Bohuslän, and was subsequently recorded by Sp. Bate under another name, viz., *Cyrtophium Darwini.* It is the type of the present genus.

Occurrence. — I have met with this form rather abundantly in several localities of the west coast of Norway, as also in the Trondhjemsfjord, in depths varying from 20 to 50 fathoms, especially where the bottom is muddy and intermingled with small pebbles and sand. Boeck also records it from the Christianiafjord and from the Nordland coast. In spite of its small size, it is easily observed by its light yellow colour, and, when kept alive in a vessel with a portion of the bottom-material, is generally found to rest nearly motionless, firmly attached by its strong pereiopoda to some small pebble or shell, the antennæ spread out to each side. When disturbed, it starts away rather rapidly, but very soon again gets hold of another particle on the bottom.

Distribution. — Bohuslän (Bruzelius), British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux), Mediterranean (Chevreux).

2. **Lætmatophilus armatus,** (Norm.).

(Pl. 227, fig. 1).

Cyrtophium armatum, Norman, Last Report on dredging among the Shetland Isles; Report of the British Assoc. f. the advanc. of Science f. 1868, p. 285.

Syn.: Lætmatophilus spinosissimus, Boeck.

Very like the preceding species, but differing in the armature of the body. Cephalon with the dorsal tubercle acutely produced. First segment of mesosome with 2 successive spiniform tubercles; 2nd segment with 3 similar projections, one median followed by 2 juxtaposed spines; each of the succeeding segments of mesosome and the 2 anterior ones of metasome armed with 2 juxtaposed dorsal spines. All appendages of the body closely agreeing in their structure with those in the preceding species. Body of a light yellowish hue, with a number of transverse bands of a vivid orange colour. Length of adult female scarcely reaching 4 mm.

Remarks. — The validity of this species would seem to be somewhat questionable, since it agrees exactly with the preceding one in all anatomical details. It is, however, markedly distinguished by the peculiar armature of the body, which has given rise to the specific name proposed by Norman. The *L. spinosissimus* of Boeck is unquestionably the same form as that recorded by Norman. I am myself much inclined to believe, that this form may more properly be regarded as merely a deep-water variety of *L. tuberculatus.*

Occurrence. — I have met with this form not infrequently along the whole west coast of Norway up to the Lofoten islands, in depths ranging from 50 to 300 fathoms.

Distribution. — Shetland Isles (Norman).

Gen. 6. Xenodice, Boeck, 1870.

Body slender and narrow, smooth, with the metasome well developed Cephalon without any rostrum. Coxal plates small, and nearly equal-sized. Eyes imperfectly developed. Antennæ very much elongated, with multiarticulated flagella, the superior ones the longer and provided with a well-developed accessory appendage. Mandibular palps rather large, with the terminal joint lamellar and densely setiferous. First pair of maxillæ with the basal lobe well developed, and carrying inside several marginal setæ; 2nd pair comparatively large. Maxillipeds about as in the preceding genus. Gnathopoda not very strong and nearly equal-sized, propodos comparatvely small and imperfectly subcheliform in female; those in male but little stronger than in female, propodos of the posterior pair produced below. Pereiopoda very slender and elongated, the 3 posterior pairs greatly increasing in length, and having the basal joint linear. Branchial lamellæ very small. Pleopoda well developed. The 2 anterior pairs of uropoda normal; last pair only present as a very slight rudiment. Telson squamiform.

Remarks. — This genus, established by Boeck, is, as it were, intermediate in character between the genera *Lætmatophilus* and *Dulichia,* somewhat resembling the latter in the narrow and slender form of the body, though differing considerably in the structure of the several appendages. The urosome, moreover, is more fully developed than in either of these genera, and exhibits even a rudiment of the last pair of uropoda. The genus comprises as yet but a single species, to be described below.

3. **Xenodice Frauenfeldti,** Boeck.

(Pl. 227, fig. 2).

Xenodice Frauenfeldti, Boeck, Crust. amph. bor. & arctica, p. 187.

Body extremely slender and elongated, nearly cylindric in form, with the back evenly rounded throughout. Cephalon about the length of the first 2 segments of mesosome combined, frontal part slightly produced and transversely truncated at the tip, lateral lobes narrowly rounded, postantennal corners well defined. Coxal plates very small, subquadrangular. Epimeral plates of mesosome well developed, last pair nearly rectangular. Eyes imperfectly developed, and replaced on each side by a patch of whitish pigment. Superior antennæ about equalling in length the whole body, 1st joint of the peduncle the shortest, the 2 outer joints very much elongated and nearly equal-sized, flagellum not quite as long as those joints combined, and composed of about 12 articulations, accessory appendage nearly $^1/_4$ the length of the flagellum, and composed of 4—5 articulations. Inferior antennæ somewhat shorter than the superior, the last 2 joints of the peduncle about equal-sized, flagellum exceeding half the length of the peduncle, and composed of about 9 articulations.

Gnathopoda in female rather feeble and densely supplied with bristles, carpus elongated and somewhat expanded below, especially in the posterior pair, propodos shorter than the carpus and oblong oval in form, with the palm scarcely defined in the anterior pair, and having in the posterior pair a slender spine below; gnathopoda in male somewhat stronger than in female, with the carpus more expanded, propodos in the anterior pair having a slender spine at the end of the palm, in the posterior pair produced below to an acute, thumb-like projection, at the base of which occurs a small spine. The 2 anteriors pairs of pereiopoda nearly twice as long as the gnathopoda; the 3 posterior pairs still longer; last pair attaining the length of the body, without the urosome. The 2 anterior pairs of uropoda rather slender, with the rami linear and edged with scattered spines, outer ramus a little shorter than the inner; last pair only represented by 2 very small lamellæ covered by the telson. The latter terminating in an obtuse point. Body greyish white, with slight transverse bands of a somewhat orange hue. Length of adult specimens, according to Boeck, 14 mm.

Remarks. — This form was described, but not figured, by Boeck in his great work, as the type of his genus *Xenodice.* It is easily recognized by its long and slender body, and the very much elongated antennæ and legs. But, as the animal is exceedingly fragile, it is very unusual to get any specimen with all its appendages uninjured. The figure here given was drawn from a young female specimen, immediately after being dredged, and while still in a living state.

Occurrence. — The only place, where I have hitherto met with this form, is at Bejan at the entrance to the Trondhjemsfjord, where some specimens were collected from a depth of 80—100 fathoms. Boeck records it from 2 other localities of the Norwegian coast, viz., from the Hardangerfjord and the Lofoten islands (Skraaven). Out of Norway, it has not yet been recorded.

Gen. 3. **Dulichia,** Krøyer, 1845.

Syn.: Dyopedos, Sp. Bate.

Body slender and narrow, with the last 2 segments of mesosome coalesced. Metasome poorly developed, 1st segment of urosome elongated and slender. Cephalon produced in front to a hooded prominence, lateral lobes obsolete. Coxal plates very small, 2nd pair in male generally larger than in female. Eyes either well developed or wanting. Antennæ very slender and elongated, the superior ones longer and more strongly built than the inferior, and provided with a small accessory appendage. Mandibular palps not very large, with the terminal joint not expanded. Basal lobe of 1st pair of maxillæ very small. Maxillipeds large, with the masticatory lobes concaved inside and edged with slender spines. Gnathopoda in female subequal, in male very unequal, the anterior ones of same structure in the two sexes, being rather slender and feeble, with the carpus comparatively large, and the propodos small, not subcheliform. Posterior gnathopoda in female with the carpus shorter than in the anterior, and the propodos generally larger; those in male very powerfully developed, with the propodos exceedingly large, and more or less strongly produced below. The 2 anterior pairs of pereiopoda comparatively small and feeble; the 3 posterior pairs much stronger, with the basal joint linear and the meral joint much elongated; last pair longer than the 2 preceding ones. Branchial lamellæ narrow cylindric in form; incubatory lamellæ very broad, especially the 2 middle pairs. Pleopoda very large, with the basal part much elongated and strongly muscular. The 2 anterior pairs of uropoda well developed, with narrow linear rami; last pair entirely wanting. Telson oval, rounded at the tip.

Remarks. — This genus was established in the year 1845 by Krøyer, to include an arctic species *D. spinosissima.* The genus *Dyopedos* of Sp. Bate is identical with Kroyer's genus. The species of this genus may be easily recognized by their extremely slender and elongated body, somewhat reminding of the *Caprellidæ,* from which they are however, at once distinguished by the much fuller development of the posterior divisions of the body (metasome and urosome) with their respective appendages. The genus comprises 6 Norwegian species, to be described below Two new species have also been described by the author from the Norwegian North Atlantic Expedition, and I have recently had an opportunity of examining another species found by the Rev. Mr. Norman in the Trondhjemsfjord. The latter will be described and figured in an appendix to the present work, as *D. Normani.*

4. **Dulichia spinosissima,** Krøyer.

(Pl. 228).

Dulichia spinosissima, Krøyer, Nat. Tidsskr. 2 ser. Vol. 1. p. 512; Pl. VI, fig. 1.

Body somewhat robust, with the anterior segments of mesosome projecting laterally to acute triangular lappets; last segment of mesosome and the 2 anterior ones of metasome each with 2 juxtaposed, tuberculiform dorsal prominences; last segment of metasome produced at the end dorsally to a long, posteriorly curving spine. Cephalon very large, and carinated dorsally, the carina terminating in front in a large, lamellar, rostriform projection; postantennal corners acutely produced. Anterior pair of coxal plates subtriangular in form, terminating in an acute point; 2nd pair somewhat larger than the others, and having a lateral lappet. Eyes very large and umboniform protuberant, pigment dark red. Antennæ densely edged posteriorly with delicate bristles; the superior ones rather strongly built, and about equalling in length the body without the urosome, 1st joint of the peduncle short and thick, 2nd more than twice as long, and produced at the end anteriorly to an obtuse projection, 3nd joint somewhat longer than the 2nd, flagellum about the length of the former, and composed of 5 articulations, the 1st of which is much the largest, accessory appendage 3-articulate, with the first 2 articulations subequal, the last one very small. Inferior antennæ shorter and narrower than the superior, the last 2 joints of the peduncle each produced at the end anteriorly to an obtuse projection, flagellum much shorter than the last peduncular joint, and composed of 3 articulations. Anterior gnathopoda with the carpus rather large and expanded, being densely setiferous below, propodos shorter than the carpus and scarcely as broad, lower edge terminating in front in a small lobe and, like the upper edge, densely setous, dactylus long and slender, minutely denticulate inside. Posterior gnathopoda in female somewhat shorter and stouter than the anterior, basal joint terminating at the end outside in a triangular lappet edged with slender spines, carpus comparatively short and expanded below to a setiferous lobe, propodos rather broad, oval in form, with the lower edge evenly curved; those in male considerably more powerful, with the propodos rather large, oval quadrangular in form, and produced below to 2 distant triangularly pointed projections, dactylus very strong and densely setous. Anterior pairs of pereiopoda small and feeble; the 3 posterior pairs rather strong and much elongated, their outer part being densely clothed with short spines, meral joint about the length of the outer 2 combined, dactylus strong and curved. Uropoda with the rami very narrow and terminating in a sharp point, the outer ones somewhat shorter than the inner, both being, as also the basal part, edged with short spines. Telson somewhat longer than it is broad, and having on either side 2 small bristles, tip narrowly rounded. Body whitish, pellucid, and variegated with irregular patches of a brown and light yellow pigment. Length of female 12 mm., of male 15 mm.

Remarks. — This is the form upon which Kroyer founded his genus *Dulichia*, and it ought therefore to be regarded as the type species. It is easily distinguished from the other known species, both by its comparatively large size and the spinous armature of the body.

Occurrence. — I have only met with this form off the coast of Finmark (Hammerfest and Vardø), in depths ranging from 30 to 50 fathoms, especially on hard bottom among Hydroida and Polyzoa.

Distribution. — Greenland (Krøyer), Spitsbergen (Goës).

5. **Dulichia porrecta**, Sp. Bate.

(Pl. 229).

Dyopedos porrectus, Sp. Bate, Ann. Nat. Hist. 2 ser. Vol. XIX, p. 151.

Body smooth throughout, being considerably more slender in male than in female. Cephalon not carinated above, but somewhat produced in front above the base of the superior antennæ. First pair of coxal plates in both sexes small, quadrangular; 2nd pair in male larger than in female and produced in front to an acute projection; the succeeding pairs very small, broader than they are deep. Eyes rather large, rounded, and slightly protuberant, pigment dark red. Antennæ slender and edged posteriorly with numerous fascicles of delicate bristles; the superior ones about the length of the whole body, 1st joint of the peduncle, as usual, quite short, 3rd joint somewat longer than the 2nd, flagellum about the length of the former, and 5-articulate, accessory appendage very small, 3-articulate, Inferior antennæ somewhat shorter than the superior, and having the flagellum about as long as the last peduncular joint. Anterior gnathopoda with the carpus less expanded than in the preceding species, propodos much shorter than the carpus, and having the lower edge quite straight. Posterior gnathopoda in female fully as long as the anterior, propodos rather narrow and elongated, being about twice as long as the carpus, and gradually tapering distally, dactylus rather short; those in male exceedingly elongated, with the basal joint long and slender, carpus comparatively small, propodos very large, being nearly 3 times as long as the carpus, and densely setiferous below, palm produced in front to an acuminate projection, and defined posteriorly by a long, lanceolate, thumb-like process, pointing straight forwards, dactylus very much elongated, setous in its outer part, and having at the base inside a tuberculiform prominence. The 2 anterior pairs of pereiopoda of moderate size, with the basal joint considerably dilated in the middle; the 3 posterior pairs not very much elongated, and but sparingly spinous. First pair of uropoda with the basal part minutely spinulose outside, inner ramus considerably longer than the outer, and having the inner edge minutely spinulose between the marginal spines. Second pair of uropoda and telson of the usual structure. Body whitish, pellucid, with narrow transverse bands of a brownish pigment. Length of adult female 5 mm., of male 6 mm.

Remarks. — This species, first described by Sp. Bate as *Dyopedos porrectus*, is easily distinguishable in the male sex by the peculiar structure of the posterior gnathopoda. The female is very like that of the next species, though, on a closer examination, the posterior gnathopoda are found to be somewhat different in shape.

Occurrence. — The species is rather frequently met with along the whole south and west coast of Norway, as also in the Trondhjemsfjord, in depths ranging from 10 to 50 fathoms. It extends northwards at least to the Lofoten islands.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), Greenland (Hansen).

6. **Dulichia monacantha**, Metzger.

(Pl. 230, fig. 1).

Dulichia monacantha, Metzger, Nordseefahrt der Pommerania, Crustacea, p. 226, Pl. VI, fig. 6.

Form of body nearly as is *D. porrecta*, though in male perhaps somewhat more robust. Cephalon but very slightly produced in front. First pair of coxal plates in female small, subquadrangular, in male very different, being produced to long horn-like processes pointing forwards; 2nd pair much larger in male than in female, and of a broad quadrangular form, with the anterior corner blunted. Eyes well developed, though perhaps a little smaller than in *D. porrecta*. Antennæ somewhat less elongated, otherwise of much the same structure as in that species. Anterior gnathopoda likewise rather similar. Posterior gnathopoda in female with the propodos considerably shorter and of a more regularly oval form; those in male not nearly so slender and elongated as in *D. porrecta*, carpus rather massive, propodos but little longer than that part, with the palm rather short, being produced in front to an acuminate projection and defined posteriorly by a spiniform, anteriorly pointing process, dactylus of moderate length, and having at the base inside a nodiform prominence. Pereiopoda almost exactly as in *D. porrecta*. First pair of uropoda with the basal part armed outside with 4 distant spines only. Body of a light yellowish hue, and more or less variegated with a dark brown pigment. Length of adult male 7 mm.

Remarks. — This species was first described by Dr. Metzger from male specimens found during the Expedition of the Pommerania. It is nearly allied to *D. porrecta*, and in the female sex, is not easy to distinguish. The male, however, is at once recognizable by the peculiar development of the anterior pair of coxal plates: the posterior gnathopoda are also rather unlike in shape.

Occurrence. — I have met with this form rather abundantly off the Finmark coast, especially at Vadsø, in depths ranging from 20 to 50 fathoms. It also occurs along the west coast of Norway and in the Trondhjemsfjord.

Distribution. — Skagerak (Metzger), Kattegat (Meinert). —

7. **Dulichia curticauda**, Boeck.

(Pl. 230, fig. 2).

Dulichia curticauda, Boeck, Crust. amph. bor. & arctica, p. 184 ♀.

Syn.: Dulichia tuberculata, Boeck ♂.
» — septentrionalis, G. O. Sars.

Body of an appearance similar to that in the 2 preceding species, though perhaps somewhat less slender. Cephalon about the length of the first 2 segments of mesosome combined, and somewhat produced in front. First pair of coxal plates not produced in the male; 2nd pair but little larger in the latter than in female. Eyes large, rounded, with dark red pigment. Antennæ very slender, with only scattered fascicles of delicate bristles, the superior ones much longer than the inferior, and nearly equalling in length the whole body, flagellum longer than the last peduncular joint, accessory appendage 3-articulate, with the middle articulation much the longest. Anterior gnathopoda nearly as in the 2 preceding species. Posterior gnathopoda in female having the carpus expanded in the middle, propodos about same length and oblong oval in form; those in male rather stout, basal joint somewhat expanded at the end, propodos very large, oval quadrangular in form, being produced below, near the base, to a narrow spiniform, slightly deflexed process, palm forming in front another acute projection pointing anteriorly, dactylus of moderate size, and, as in the 2 preceding species, provided at the base inside with a tuberculiform prominence. Anterior pairs of pereiopoda with the basal joint but very slightly expanded; the 3 posterior pairs considerably more elongated than in the 2 preceding species. First pair of uropoda with the basal part armed outside with about 8 spines; 2nd pair having the basal part unusually short, scarcely half as long as that of the 1st pair. Body whitish, more or less variegated with a reddish brown pigment. Length of adult male 5 mm.

Remarks. — This form has been described by Boeck under 2 different names, viz., *D. tuberculata* and *D. curticauda*, the former being the male, the latter the female of one and the same species. The form described by me from the Norwegian North Atlantic Expedition as *D. septentrionalis*, I now regard as identical with Boeck's species. It is somewhat intermediate in character between *D. porrecta* and *D. falcata*, though being somewhat more closely related to the latter species, from which it may be distinguished by its much smaller size and the somewhat different structure of the posterior gnathopoda. Moreover the basal part of the 2nd pair of uropoda is unusually short, and this feature may have given rise to the name *curticauda* proposed by Boeck for the female.

Occurrence. — The species would seem to occur along the whole Norwegian coast, from the Christianiafjord to Vadsø, in moderate depths, together with the other species.

Distribution. — Spitsbergen (Norw. North Atl. Exped.).

8. **Dulichia falcata**, (Sp. Bate).

(Pl. 231, fig. 1).

Dyopedos falcatus, Sp. Bate, Ann. Nat. Hist. 2 ser. Vol. XIX, p. 151.

Body rather slender and elongated, especially in the male, and quite smooth. Cephalon about the length of the first 2 segments of mesosome combined, and somewhat produced in front. First pair of coxal plates very small and of same appearance in the two sexes; 2nd pair a little larger in male than in female, and slightly bilobed. Eyes very large, rounded, with dark red pigment. Superior antennæ exceedingly elongated and slender, being considerably longer than the whole body, flagellum about the length of the last peduncular joint, accessory appendage extremely minute, though distinctly 3-articulate. Inferior antennæ much shorter than the superior. Anterior gnathopoda nearly as in the preceding species. Posterior gnathopoda in female with the carpus of moderate size and somewhat expanded in the middle, propodos slightly exceeding the carpus in length, and oblong oval in form; posterior gnathopoda in male very powerfully developed, basal joint forming at the end anteriorly a rounded expansion, propodos exceedingly large, oval quadrangular in form, and densely setiferous below, palm produced in front to an anteriorly-pointing acute projection, and defined posteriorly by a somewhat lamellar and peculiarly contorted, thumb-like process, dactylus rather large and densely setous, with a small tuberculiform prominence inside at the base.

Anterior pairs of pereiopoda with the basal joint scarcely expanded; the 3 posterior pairs rather elongated, last pair equalling in length the mesosome and cephalon combined. First pair of uropoda with the basal part nearly smooth; that of 2nd pair fully half as long. Body whitish, pellucid, and more or less variegated with a dark claret-red pigment. Length of adult male reaching 8 mm.

Remarks. — The present species, established by Sp. Bate, may be easily distinguished by the very slender and elongated superior antennæ, and especially by the peculiarly contorted shape of the thumb-like process, that defines the palm of the posterior gnathopoda in the male. It is nearly related to *D. curticauda* of Boeck.

Occurrence. — I have met with this form not infrequently along the whole Norwegian coast, from the Christianiafjord to Vadsø, in depths ranging from 20 to 50 fathoms.

Distribution. — British Isles (Sp. Bate).

9. **Dulichia nordlandica**, Boeck.

(Pl. 231, fig. 2, Pl. 232, fig. 1).

Dulichia nordlandica, Boeck, Crust. amph. bor. & arct. p. 183.

Body extremely slender and elongated, and quite smooth throughout. Cephalon not very large, and but slightly produced in front. Coxal plates very small and but little different in the two sexes. Eyes imperfectly developed, being replaced on each side by a patch of whitish pigment, without any trace of visual elements. Both pairs of antennæ extremely slender and elongated, and rather densely setiferous, the superior ones exceeding in length the whole body. Gnathopoda in female very slender and of a rather similar shape, though the carpus is somewhat shorter in the posterior pair, meral joint in both pairs unusually elongated. Posterior gnathopoda in male rather strongly built, with the propodos very large and somewhat curved, lower edge setous and without any thumb-like process at the base, but produced in front to an acute, anteriorly-pointing projection, above which occurs another somewhat smaller one, dactylus very much elongated, and having at the base inside a tuberculiform prominence. Anterior pairs of pereiopoda comparatively slender, with the basal joint narrow; the 3 posterior pairs very slender and elongated, last pair scarcely longer than the 2 preceding ones, and having the propodal joint somewhat expanded in its proximal part, and armed indside with a row of strong spines. Second pair of uropoda with the basal part exceeding half the length of that of the 1st pair. Body pellucid, of a pale yellowish hue, and without any trace of pigmentary ornament. Length of adult female 5 mm., of male about the same.

Remarks. — This species, established by Boeck, is easily recognized from any of the other Norwegian species by the imperfectly developed visual organs, the very slender and elongated antennæ and legs, and by the peculiar shape of the posterior gnathopoda in the male.

Occurrence. — This is a true deep-water species, only occurring in greater depths ranging from 100 to 300 fathoms. I have met with it occasionally in several localities both on the south and west coasts of Norway, as also in the Trondhjemsfjord. According to Boeck it extends northwards to the Lofoten islands (Skraaven). Out of Norway, it has not yet been recorded.

Gen. 4. **Paradulichia,** Boeck, 1870.

Form of body about as in *Dulichia*, and also most of the appendages constructed upon the very same type as in that genus. Second pair of uropoda, however, very different, being quite rudimentary, and consisting of only a single, conically-tapering joint.

Remarks. — The validity of this genus, established by Boeck, would seem to be somewhat questionable, since it only differs from *Dulichia* in a single feature, viz., in the imperfect condition of the 2nd pair of uropoda, all other parts being constructed upon the very same type as in that genus. The genus comprises as yet but a single species, to be described below.

10. **Paradulichia typica,** Boeck.

(Pl. 232, fig. 2).

Paradulichia typica, Boeck, Crust. amph. bor. & arctica, p. 185.

Female. — Body not very slender, being rather tumid in its anterior part, and quite smooth throughout. Cephalon of moderate size, and slightly produced in front. Coxal plates very small and of a similar appearance to those in *Dulichia*. Eyes large and protuberant, rounded, with dark red pigment. Antennæ slender, and densely setiferous, the superior ones considerably longer and more strongly built than the inferior, with the last joint of the peduncle the longest, flagellum about the length of that joint, and composed of 5 articulations, accessory appendage 3-articulate, with the 1st articulation about as long as the other 2 combined. Anterior gnathopoda of the very same appearance as in the typical species of *Dulichia*. Posterior gnathopoda differing from the anterior in the fact of the carpus being shorter and the propodos larger and broader, regularly oval in form. Anterior pairs of pereiopoda moderately slender, with the basal joint but slightly expanded; the 3 posterior pairs not very much elongated, but of a structure similar to that in the genus *Dulichia*. First pair of uropoda rather strongly built, with the basal part oblong quadrangular, and edged outside with about 8 spines, rami slender and elongated, being densely edged with small spines, inner ramus somewhat longer than the outer, and fully twice as long as the basal part; 2nd pair extremely small, and partly concealed by the telson, consisting on each side of a simple, conically-tapering joint, armed with one apical, and 2 lateral spines. Telson oval, rounded at the tip. Body pale yellow, ornamented with irregular patches of a brownish pigment. Length of adult female 5 mm.

Remarks. — Only the female sex has hitherto been observed. Perhaps, in the structure of the posterior gnathopoda, the male may be found to reveal some more striking differences from the genus *Dulichia*.

Occurrence. — I have seen only a few specimens of this form, which were collected in the outer part of the Hardangerfjord from a depth of about 30 fathoms. The specimens examined by Boeck were likewise from the Hardangerfjord. Out of Norway, this form has not yet been recorded.

Tribe 3.

CAPRELLIDEA.

Body sometimes slender, cylindrical, sometimes short and broad, depressed. Cephalon more or less completely coalesced with the 1st segment of mesosome. Metasome and urosome rudimentary. Superior antennæ more or less slender, and without any accessory appendage; inferior antennæ much smaller than the superior. Oral parts now normally developed, now very small and densely crowded together beneath the anterior part of the cephalon. Gnathopoda generally very unequal, the posterior ones being much the larger. Anterior pairs of pereiopoda most frequently wanting; the posterior pairs strong, prehensile. Branchial lamellæ, as a rule, only present on the 3rd and 4th segments of mesosome; of incubatory lamellæ never more than 2 pairs, issuing from beneath the said segments. Pleopoda wanting; uropoda either rudimentary or obsolete.

Remarks — This is the last tribe of Amphipoda, comprising the lowest members of the order, and corresponding to the *Læmodipoda* of earlier authors. In their outward appearance, the forms belonging to this tribe vary considerably from the Amphipodous type, as revealed in the *Gammaridæ*, being either extremely narrow and cylindric, or broad and depressed. In both cases they are very distinct owing to the rudimentary condition of the 2 posterior divisions of the body (metasome and urosome). The tribe comprises 2 distinct families, viz., the *Caprellidæ* and the *Cyamidæ*, the first of which exhibits some points of agreement with the last family of the *Gammaridea*, the *Dulichiidæ*.

Fam. 1. Caprellidæ.

Body narrow, cylindric, and very flexible, with the 1st segment of mesosome generally defined from the cephalon by a slight dorsal depression, 3rd and 4th segments in female much broader than in, male, and carrying the marsupial pouch. Superior antennæ slender and elongated, with multiarticulate flagellum. Inferior antennæ well developed, though, as a rule, much smaller than the superior ones. Buccal area rather prominent. Anterior lip broad, bilobed; posterior lip with distinct inner lobes. Mandibles with or without palps. First pair of maxillæ without any basal lobe, palp well developed, biarticulate; 2nd pair small. Maxillipeds normally developed, with large pediform palps. Gnathopoda very unequal, the anterior ones comparatively small, and originating far in front, beneath the cephalon; the posterior ones much larger, and often very differently shaped in the two sexes. Pereiopoda more or less reduced in number, the 2 posterior pairs always strongly developed and prehensile. Metasome and urosome forming together generally a very small nodiform appendage issuing between the bases of the last pair of pereiopoda, and carrying more or less distinct rudiments of limbs (uropoda).

Remarks. — The forms belonging to this family are easily recognizable by their narrow cylindrical body, which is very flexible, so as to be bent in a complete circle. They are generally found clinging to algæ or Hydroida, to which they attach themselves firmly by the aid of the powerfully developed posterior pairs of pereiopoda. The family comprises as yet 10 different genera, 6 of which are represented in the fauna of Norway.

Gen. 1. **Phtisica,** Slabber, 1749.

Syn.: Proto, Leach.
» Leptomera, Latr.
» Naupredia, Latr.

Body very slender, with no perceptible boundary between the cephalon and 1st segment of mesosome; the 5 succeeding segments elongated, last segment very short. Both pairs of antennæ with multiarticulate flagella, the superior ones being, as usual, much the longer. Mandibles with the cutting edge divided into several superposed lamellæ, molar expansion obsolete, palp well developed. Maxillipeds with the masticatory lobes smaller than the basal ones. Both pair of gnathopoda distinctly subcheliform and but slightly differing in the two sexes, the posterior ones being much the larger, with the propodos oblong fusiform in shape. All 5 pairs of pereiopoda present, the 2 anterior ones very slender, antepenultimate pair smaller than the others, with the ischial joint not defined. Branchial lamellæ narrow, present on the 2nd, 3rd and 4th segments of mesosome. Urosome with 2 pairs of biarticulate appendages (uropoda).

Remarks. — The Rev. Mr. Stebbing has called attention to the fact, that the type of this genus has already been described by Slabber in the year 1749 as *Phtisiea marina*, and, according to the laws of priority, the generally used generic name *Proto*, which was proposed by Leach in 1814, must therefore cede to the much older generic name *Phtisiea* of Slabber. Two other generic names have been proposed by Latreille, viz., *Leptomera* and *Naupredia*, both being merely synonyms. From all the other *Caprellidæ*, this genus is easily distinguished by having all the pereiopoda distinctly developed. Several species of this genus have been described, but some of them are very unsatisfactorily characterized, and P. Mayer only admits 4 species. To the fauna of Norway belongs but a single species, to be described below.

1. **Phtisica marina**, Slabber.

(Pl. 223).

Phtisica marina, Slabber, Natuurk. Verlust, p. 79.

Syn.: Squilla ventricosa, Müller ♀.
» Gammarus pedatus, Abildg.
» Proto pedata. Leach.
» Leptomera pedata, Latr.
» Leptomera ventricosa, Desm.
» Naupredia tristis, v. Bened.
» Proto Goodsiri, Sp. Bate.
» — ventricosa, Boeck.

Body extremely slender and perfectly smooth, with the 4 anterior free body-segments somewhat fusiform in shape; antepenultimate segment fully as long as the preceding one; last segment very short. Cephalosome (cephalon + 1st segment of mesosome) much shorter than the succeeding segment and nearly club-shaped, being obtusely rounded in front. Eyes of moderate size, orbicular, with dark red pigment and well-developed visual elements. Superior antennæ exceeding half the length of the body, 2nd joint of the peduncle the longest, 3rd joint longer than the 1st, flagellum not quite as long as the peduncle, and composed of about 14 articulations. Inferior antennæ scarcely half the length of the superior, and much narrower, with only scattered bristles posteriorly, the last 2 joints of the peduncle nearly equal-sized, flagellum about the length of the last peduncular joint, and composed of 5 articulations. Anterior gnathopoda with the carpus comparatively narrow and but slightly widening distally, propodos about twice its length and rather expanded, subtriangular in form, palm very oblique, and defined posteriorly by a projecting lobe armed with several small spines, which in the male are arranged in 2 successive fascicles, dactylus strong, falciform. Posterior gnathopoda in female with the basal joint very narrow, carpus extremely small, propodos exceedingly large, oblong fusiform in shape, being more than twice as long as it is broad, palm arcuate and minutely denticulate, being defined behind by two projections, each tipped by 2 spines, hind margin about half the length of the palm, dactylus strong, falciform; posterior gnathopoda in male somewhat larger than in female, with the meral joint produced in front to a conical projection, propodos somewhat arcuate, with the palm hollowed, being filled by a membranous tissue, and forming in front an angular projection, dactylus extremely strong and abruptly curved in its outer part. The 2 anterior pairs of pereiopoda in female extremely slender, filiform, with the carpal and propodal joints of equal length, in male comparatively more strongly built, and having the carpal joint shorter and the propodal one somewhat expanded, with 4 strong spines inside. Antepenultimate pair of pereiopoda much smaller than the others and nearly smooth, basal joint occupying half the length of the leg, and connected to the meral joint by an oblique suture, propodal joint simple, slightly widening distally. The 2 posterior pairs subequal and rather strong, with the propodal joint subcheliform, palm armed with 2 spines and defined by a slight projection carrying 2 juxtaposed spines, between which the tip of the dactylus admits of being impinged. Uropoda in both sexes of a similar appearance, being narrow cylindrical in form, with the outer joint very small. Body of somewhat variable colour, being generally of a greyish white hue, mottled all over with small brown and red specks, but sometimes exhibiting a uniformly dark red colour. Length of adult female reaching 16 mm., of male 20 mm.

Remarks. — As above stated, this form was first described by Slabber under the name here quoted. The *Squilla ventricosa* of Müller is the ovigerous female of this species, and also *Gammarus pedatus* of Abildgaard is unquestionably the same. The 2 forms described by Sp. Bate as *Proto pedata* and *P. Goodsiri,* and also maintained by Boeck as distinct species, ought to be united, the former being the female, the latter the adult male of the species here treated of. The *Naupredia tristis* of v. Beneden would seem to be an immature specimen of the present form, in which, by some accident, the 2 posterior pairs of pereiopoda had been broken off. The species cannot be confounded with any other of the northern Caprellidæ.

Occurrence. — I have met with this form along the whole Norwegian coast, from the Christianiafjord to Vadsø. It is generally found in comparatively shallow water among grass, occurring often in great abundance. Occasionally it may also be taken from greater depths, among the red algæ, and such specimens are generally of smaller size and often of a dark red colour, in accordance with their surroundings. Though devoid of any natatory limbs, the animal is enabled to move rather quickly through the water by rapidly repeated bends of the body.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek), coast of France (Chevreux), Mediterranean (P. Meyer), Adriatic (Heller), Azores (Barrois).

Gen. 2. **Protella,** Dana, 1852.

Syn.: Ægina, Boeck (part).

Body very slender, and more or less spinous, with a slight impression dorsally between the cephalon and 1st segment of mesosome, the last 2 body-segments short. Superior antennæ slender and elongated; inferior antennæ with the flagellum short, biarticulate. Mandibles normally developed, with the molar expansion well marked, and the palp rather large. Maxillipeds with the masticatory lobes larger than the basal ones, and only armed with a few scattered bristles. Gnathopoda very unequally developed and of nearly same structure in the 2 sexes, the anterior ones being rather small, the posterior ones very much elongated, with the propodos exceedingly large and having the palmar edge divided into acute lappets. The 2 anterior pairs of pereiopoda only present as very small, uniarticulate rudiments at the bases of the branchial lamellæ; the 3 posterior pairs well developed, the antepenultimate pair being however somewhat less strong than the last 2 pairs, which are distinctly subcheliform. Branchial lamellæ only present in the 3rd and 4th segments of mesosome. Urosome very small, and without any distinct appendages.

Remarks. — This genus was established in the year 1852 by Dana, and was characterized by the presence of distinct, though small rudiments of the 2 anterior pairs of pereiopoda. The genus was also accepted by Sp. Bate, whereas Boeck combined it with the genus *Ægina* of Kroyer. In outward appearance, as also in the structure of most of the appendages, both genera are certainly closely related, but ought, in my opinion, to be kept apart on accout of the above-named characteristic, which was overlooked by Boeck, as also because the urosome exhibits in both a rather different structure. Several species also of this genus have been described, some of which appear to be well marked. To the fauna of Norway belongs only a single species, to be described below.

2. **Protella phasma** (Mont)

(Pl. 234, fig. 1).

Cancer phasma, Montagu, Trans. Lin. Soc. Vol. VII, p. 66, Pl. VI. fig. 3.

Syn. Caprella phasma, Lam.
» — spinosa, Goodsir.
» — acuminifera. Johnst.
» Ægina longispina, Krøyer.
» Protella longispina, Sp. Bate.
» Ægina phasma, Boeck.
» — lævis, Boeck.

Body rather narrow and elongated, with the cephalosome nearly as long as the succeeding segment, and having 2 elongated, somewhat anteriorly curving dorsal spines, the anterior one belonging to the cephalon, the posterior to the 1st segment of mesosome; 2nd segment with 2 juxtaposed dorsal spines somewhat in front of the middle and another at the end of the segment; the 2 succeeding segments exhibiting more or less distinct traces of a similar armature to the above; the 3 posterior segments always smooth above. Each of the free body-segments having on either side, just above the insertion of the legs, a lateral spine, pointing anteriorly in the first 2 segments, in the succeeding ones, posteriorly. Eyes comparatively small, orbicular, with dark red pigment. Superior antennæ extremely slender and elongated, even exceeding in length the whole body, 2nd joint of the peduncle the longest, 3rd joint about the length of the 1st, flagellum nearly as long as the peduncle, and composed of numerous articulations. Inferior antennæ considerably shorter than the peduncle of the superior ones, and but sparingly setous, last joint of the peduncle the longest, flagellum scarcely $^1/_4$ as long as the latter. Anterior gnathopoda very small, with the carpus but slightly expanded, propodos about same length and oval in form, palm defined by a very slight obtuse angle. Posterior gnathopoda strongly developed, basal joint long and slender, terminating outside in an acute lappet, meral joint obtusely rounded in front, propodos exceedingly large and oblong fusiform in outline, with the upper edge somewhat arcuate and terminating in front, above the dactylus, in a conical prominence, lower edge forming 2 distant acute lappets, the posterior of which, defining the palm, is tipped by a small spine, and having in front a broad, obtuse projection defined behind by a deep sinus, dactylus strong, falciform. Antepenultimate pair of pereiopoda rather slender, with the carpal joint longer than the propodal one, the latter rather narrow, with a very slight angular prominence at the base carrying a single spine. The last 2 pairs much more strongly built, though scarcely as long as the antepenultimate pair, propodal joint very strong and somewhat curved, fully twice as long as the carpal one, with the palmar edge spinulose and defined by a distinct triangular projection, dactylus strong, falciform. Urosome very small; provided on each side with a number of stiff bristles, but without any true appendages. Body whitish, pellucid, more or less variegated with a reddish brown pigment, forming generally on each side of the marsupial pouch 2 large stellate patches. Length of adult female 12 mm.

Remarks. — This form was first described by Montagu as *Cancer phasma*, and has been subsequently recorded by different authors under several other names mentioned above as synonyms. The *Ægina lævis* of Boeck is apparently only based on immature specimens of the present form, in which the dorsal spines have not yet developed. In the adult state it may be easily recognized from the other northern Caprellidæ by the peculiar armature of the anterior part of the body, the extremely elongated superior antennæ, and the structure of the posterior gnathopoda. The rudiments of the 2 anterior pairs of pereiopoda will suffice to distinguish it from the species of the genus *Ægina,* to which it otherwise bears a close resemblance.

Occurrence. — I have only met with this form in a few localities of the south coast of Norway (Risør, Arendal), clinging to Hydroida in depths ranging from 20—40 fath. According to Boeck, it also occurs off the west coast of Norway (Karmø), as also in the Christianiafjord.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux), Mediterranean (P. Mayer), Adriatic (Heller), Azores (Barrois).

Gen. 3. **Ægina,** Krøyer, 1843.

Body of a similar slender form to that in the preceding genus, sometimes smooth, sometimes coarsely spinous. Antennæ about as in that genus. Oral parts differing in the fact of the mandibular palps being somewhat less elongated, and the masticatory lobes of the maxillipeds strongly spinous inside. Gnathopoda resembling in structure those in the genus *Protella.* The 2 anterior pairs of pereiopoda wholly absent, not even the slightest rudiment being observable; the 3 posterior pairs strongly developed, and of equal structure, with the propodal joint large and expanded at the base. Branchial lamellæ only present on the 3rd and 4th segments of mesosome. Urosome in both sexes with 2 pairs of appendages, the anterior ones biarticulate, the posterior, uniarticulate.

Remarks. — The present genus, established by Krøyer, is nearly allied to the preceding one, yet differing very markedly in the absolute want of any rudiments of anterior pereiopoda, and in the urosome being provided with 2 pairs of distinct appendages (uropoda). The genus comprises as yet only 3 species, viz., *Æ. longicornis* Kroyer, *Æ. spinosissima* Stimps., and *Æ. echinata* Boeck. The last named species only belongs to the fauna of Norway, and will be described below.

3. **Ægina echinata**, Boeck.

(Pl. 234, fig. 2).

Ægina echinata, Boeck, Crust. amph. bor. & arct. p. 191.

Body rather slender, and densely armed with comparatively short spines, some of which, generally arranged in pairs along the dorsal face, are somewhat larger than the others. Cephalosome a little shorter than the succeeding segment, and having in front of the cervical impression 2 juxtaposed spines. The last 2 segments comparatively short and nearly equal-sized, each with 2 juxataposed dorsal projections. Lateral spines as in *Protella phasma*. Eyes small, orbicular. Superior antennæ scarcely attaining the length of the body, 2nd joint of the peduncle the longest, 3rd joint much longer than the 1st, flagellum shorter than the peduncle. Inferior antennæ scarcely half as long as the superior, and having a dense clothing of short bristles posteriorly, flagellum small, biarticulate. Anterior gnathopoda with the carpus expanded below to a rounded setiferous lobe, propodos exceeding the carpus in length, and oval triangular in form, palm straight and defined behind by an obtuse angle carrying a short spine. Posterior gnathopoda with the basal, ischial and meral joints produced at the end to acute projections, propodos very large, oblong oval in form, with the palmar edge divided into 2 distant acute projections, the posterior tipped by a spine, the anterior defined in front by a narrow sinus, end of the propodos produced above the insertion of the dactylus to a conical process and below it to an angular lobe, dactylus strong, and curved. Branchial lamellæ of moderate size, and oboval in form. The 3 pairs of pereiopoda successively slightly increasing in size, propodal joint in all rather strong and somewhat expanded in its proximal part, palm minutely spinulose, and defined by a slight projection carrying 2 juxtaposed spines. Urosome less rudimentary than in the species of the genus *Protella*, anterior pair of uropoda much larger than the posterior, with the terminal joint about the length of the basal one, and oval lamellar. Colour in the living state of the animal not yet stated. Length of adult female 14 mm.

Remarks. — The above given description and the accompanying figures are from 2 specimens in the collection of Boeck labelled as above. The description and figures given by Boeck in his great work would seem to differ in some points; his statement about the length of the animal (35—40 mm.) is especially strange, and seems to indicate, that he has confounded the Norwegian form with the nearly-allied Arctic species, *Æ. spinosissima* Stimpson, of which he may have had specimens for examination. Of the latter species several specimens were collected during the Norwegian North Atlantic Expedition, and a description of this form, accompanied by some figures, has been given by the author in the account of the Crustacea of that Expedition, the species being named *Æ. spinifera* Bell. It will appear, on a closer comparison, that the Norwegian form described above, is specifically distinct from the Arctic species, though nearly related, as to the structure of the several appendages.

Occurrence. — I have not myself met with this form, but Boeck states its occurrence off the west coast of Norway, in the neighbourhood of Bergen. Out of Norway, it has not yet been recorded.

Gen. 4. **Æginella,** Boeck, 1860.

Body somewhat robust and coarsely spinous, with the cephalosome comparatively short and exhibiting a well-marked suture between the cephalon and the 1st segment of mesosome; the last 2 body-segments comparatively short. Antennæ and oral parts about of same structure as in the genus *Ægina.* Anterior gnathopoda small; posterior ones very powerfully developed, with the propodos large and broad, slightly differing in the 2 sexes. The 2 anterior pairs of pereiopoda quite wanting; the 3 posterior pairs subequal and rather strong, distinctly subcheliform. Branchial lamellæ only present on the 3rd and 4th segments of mesosome. Urosome small, composed of 2 segments, the anterior of which carries a pair of uniarticulate appendages (uropoda).

Remarks. — This genus, established by Boeck, is nearly allied to the 2 preceding ones, yet differs in the more distinct demarcation between the cephalon and the 1st segment of mesosome, the somewhat differently shaped posterior gnathopoda, and the structure of the urosome, which agrees with that in the genus *Caprella*. Besides the Norwegian species described below, Boeck opines that the 2 species *Ægina tenella* and *aculeata* of Dana may belong to this genus.

4. **Æginella spinosa**, Boeck.

(Pl. 235, fig. 1).

Æginella spinosa, Boeck, Crust. amph. bor. & arct. p. 192.

Body comparatively strongly built, with the cephalosome unusually short, scarcely exceeding half the length of the succeeding segment, and armed with 2 dorsal spines, the anterior placed quite in front, the posterior immediately behind the cervical suture, the latter being very long and curving anteriorly. Second segment of mesosome with 2 strong, juxtaposed dorsal spines in front of the middle, and another near the posterior end; the succeeding segments each with 2 pairs of somewhat smaller dorsal spines and a single one at the posterior extremity; the last 2 segments each with 2 juxtaposed dorsal spines about in the middle. Lateral spines wanting. Eyes small, orbicular, with dark red pigment. Superior antennæ but little exceeding half the length of the body, 2nd joint of the peduncle the longest, 3rd joint scarcely longer than the 1st, flagellum somewhat exceeding in length the peduncle, and composed of numerous articulations. Inferior antennæ scarcely half the length of the superior, and very narrow, flagellum small, biarticulate. Anterior gnathopoda as in *Ægina echinata*. Posterior gnathopoda in female very powerfully developed, meral joint forming below an obtuse projection, propodos exceedingly large and tumid, with the upper edge boldly curved and terminating in front in a small conical projection, lower edge forming at the base a triangular lobe tipped by a small spine and defining the palm posteriorly, this last being produced in front to an angular lappet, behind which occurs a small dentiform projection, dactylus very strong and falciform; posterior gnathopoda in male somewhat larger than in female, with the palmar edge of the propodos densely setous, and the dentiform projection more produced. Branchial lamellæ of moderate size, narrow oblong in form. The 3 pairs of pereiopoda well developed, with the propodal joint about twice the length of the carpal one, and produced at the base to a distinct projection defining the palm. Body of a light yellowish hue, more or less variegated with a dark brown pigment. Length of adult female 15 mm., of male about the same.

Remarks. — This form was already anounced by Boeck in the year 1860, at the meeting of the Scandinavian naturalists in Christiania, and was subsequently described more fully by the author. It is easily recognizable from the other northern Caprellidæ by the unusually short cephalosome, the characteristic armature of the body, and the robust structure of the posterior gnathopoda.

Occurrence. — I have met with this form rather abundantly in the Trondhjemsfjord, as also at Bodø and Hammerfest, in depths ranging from 50 to 100 fathoms, clinging to Hydroida. According to Boeck, it also occurs off the west coast of Norway, at Haugesund.

Distribution. — Greenland (Hansen). —

Gen. 5. **Pariambus,** Stebbing, 1888.

Syn.: Podalirius, Krøyer.
» Caprella, Sp. Bate (part).

Body not very slender, smooth, with a distinct dorsal impression between the cephalon and the 1st segment of mesosome. Antennæ in female comparatively short, in male somewhat more elongated, the inferior ones with the flagellum biarticulate. Mandibles without any trace of palps. Maxillipeds with the masticatory lobes much larger than the basal ones. Anterior gnathopoda of the usual structure. Posterior gnathopoda with the propodos oval in form, and sometimes rather differently shaped in the male. The 2 anterior pairs of pereiopoda quite wanting; antepenultimate pair rudimentary, forming on each side a very small biarticulate appendage; the last 2 pairs well developed, with the propodal joint long and slender. Branchial lamellæ only present on the 3rd and 4th segments of mesosome. Urosome with a very slight rudiment of a pair of appendages.

Remarks. — This genus was established by Krøyer in the year 1844, but as the name he proposes, *Podalirius*, was already appropriated in Zoology, the Rev. Mr. Stebbing has changed it to *Pariambus*. The genus was not accepted by Sp. Bate, who referred the type species to the genus *Caprella*. It is, however, pretty well distinguished from that genus by the rudimentary condition of the antepenultimate pair of pereiopoda. Besides the Norwegian species described below, Dr. P. Mayer records 2 Mediterranean species, as *P. Krøyeri* and *minutus*.

5. **Pariambus typicus**, (Krøyer).

(Pl. 235, fig. 2).

Podalirius typicus, Krøyer, Nat. Tidsskr. 2 ser. Vol. 1, p. 283.

Syn.: Caprella typica, Sp. Bate.

Body perfectly smooth, and rather stout in female, somewhat more slender in male. Cephalosome about the length of the succeeding segment, and obtusely rounded in front; penultimate segment twice as large as the last one. Eyes small, rounded, pigment dark red. Superior antennæ in female rather short, about equalling $^1/_3$ of the length of the body, 2nd joint of the peduncle the longest, 3rd joint about the length of the 1st, flagellum half the length of the peduncle, and composed of 4 articulations only; those in male considerably more elongated, with the 1st joint of the peduncle equalling in length the 2nd, and the flagellum 6-articulate. Inferior antennæ in female but little shorter than the superior, and but sparingly setous. Anterior gnathopoda with the carpus comparatively short and expanded below to a setiferous lobe, propodos of the usual oval triangular shape. Posterior gnathopoda in female with the meral joint obtusely produced in front, propodos large and of a regular oval form, with the upper edge evenly curved, the lower forming at the base a distinct triangular projection defining the palm, which is evenly arcuate, without any projections, dactylus strong, falciform; those in male comparatively larger than in female, with the propodos more elongated, and having the palm deeply insinuated in the middle, the sinus being defined behind by a linguiform projecting lobe. Branchial lamellæ very small. Antepenultimate pair of pereiopoda extremely minute, with the terminal joint about twice the length of the basal one, and carrying a number of small bristles. The last 2 pairs of pereiopoda rather slender, with the carpal joint longer than the meral one, propodal joint fully as long as those joints combined, and linear in form, with a very slight prominence at the base tipped by a spine, dactylus falciform. Body of a yellowish grey hue, sometimes slightly variegated with a light brown pigmen. Length of adult female 6 mm., of male 7 mm.

Remarks. — This form was first described by Krøyer as the type of his genus *Podalirius*, and has subsequently been recorded by several other authors. From the 2 Mediterranean species described by P. Mayer, it is chiefly distinguished by the rather different shape of the propodos of the posterior gnathopoda in the male.

Occurrence. — The species occurs rather abundantly along the whole of the south and west coasts of Norway, as also in the Trondhjemsfjord, in depths ranging from 2—20 fathoms, especially on muddy bottom. According to the statements of Krøyer, it is often found attached to the common starfish (Asterias rubens).

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), Dutch coast (Hoek).

Gen. 6. **Caprella,** Lamark, 1818.

Body more or less slender, being, in the adult male, as a rule, much more elongated than in female, with the anterior part sometimes enormously prolonged. Cephalosome of moderate length, and having a distinct dorsal impression, indicating the boundary between the cephalon and 1st segment of mesosome. Superior antennæ more or less elongated, with the joints of the peduncle in male often lamellarly expanded. Inferior antennæ generally densely setous posteriorly, with the flagellum biarticulate. Mandibles without any palps. Maxillipeds with the masticatory lobes scarcely larger than the basal ones, palps very strong. Anterior gnathopoda of the usual structure. Posterior gnathopoda strongly developed, and often very differently shaped in the 2 sexes. The 2 anterior pairs of pereiopoda quite wanting; the 3 posterior pairs of equal structure, and generally very strongly built, subcheliform. Branchial lamellæ only present on the 3rd and 4th segments of mesosome. Urosome in female without distinctly defined appendages, in male with a pair of biarticulate limbs in front.

Remarks — This is the genus at first established, being the type of the family. It agrees with the genus *Pariambus* in the absolute want of mandibular palps and of the 2 anterior pairs of pereiopoda, but differs in the circumstance of the antepenultimate pair being well developed and of same structure as the last 2 pairs. Numerous species of this genus have been described, but a great number of them have turned out to be spurious, on account of the authors not having always been aware of the great sexual difference often met with in the species of this genus. While young male specimens do not differ much from the females, the sexually developed adult male generally exhibits a very different aspect, the anterior part of the body becoming greatly elongated and the posterior gnathopoda peculiarly modified. Moreover there seems to be some variation, both as regards the armature of the body and the structure of the superior antennæ. In every case, for the exact definition of the species, both sexes ought to be regarded, as also the amount of variation. Most of the new species established by Boeck are indeed only founded on male specimens, and cannot therefore, as yet, be regarded as satisfactorily defined. On a closer examination of the material at my disposal, I have, up to the present felt justified in adopting 9 Norwegian species, one of which is now for the first time established.

6. **Caprella linearis**, (Lin.).

(Pl. 236).

Cancer linearis, Linné, Syst. Nat. p. 1056.

Syn.: Squilla lobata, O. Fr. Müller.
» — quadrilobata, O. Fr. Müller.
» Gammarus quadrilobatus, O. Fr. Müller.
» Caprella lobata, Guerin.
» — lævis, Goodsir.
» — phasma, Rathke.
» — acuminifera, Rathke.
» — scolopendroides, Rathke.
» — laticornis, Boeck.

Body in female rather narrow, though having the 3rd and 4th segments of mesosome, which carry the marsupial pouch, very broad and expanded. Anterior part of the body generally smooth, or with very slight traces of dorsal tubercles, the 3 posterior segments more distinctly tubercular. Body in the adult male much more slender, its anterior part, comprising the cephalosome and the 1st free body segment, being greatly elongated, and about equalling in length the 3 succeeding segments combined. Eyes small, orbicular, with red pigment. Superior antennæ in female about half the length of the body, 2nd joint of the peduncle the longest, 3rd joint about the length of the 1st, flagellum nearly as long as the peduncle, and composed of about 13 articulations; those in male having the joints of the peduncle more or less expanded and finely ciliated on the edges, flagellum scarcely attaining half its length. Inferior antennæ in female much longer than the peduncle of the superior ones, in male but little exceeding half its length, flagellum about the length of the last peduncular joint. Anterior gnathopoda with the carpus comparatively short and forming below a rounded, setiferous lobe, propodos twice as long as the carpus, and oval triangular in form, palm occupying nearly the whole inferior edge, and defined behind by a distinctly projecting angle armed with a spine. Posterior gnathopoda in female moderately strong and attached in front of the middle of the corresponding segment, propodos oval in form, palm terminating in front with a very slight rounded lobe having below a small dentiform projection, defining angle rather projecting, being tipped by a strong spine, and having at the base another spine issuing from a small tuberculiform projection, dactylus rather strong and evenly curved; posterior gnathopoda in male very much elongated, and attached far behind the middle of the corresponding segment, basal joint long and slender, propodos oblong in form, being 3 times as long as it is broad, palm irregularly indented, having, at about the middle, an acute projection, and in front, a rather projecting, angular lobe, the two being separated by a deep sinus, defining angle as in the female; dactylus very strong and abruptly curved in its outer part, inner edge somewhat flexuous and densely setous. Branchial lamellæ of moderate size and oval in form. The 3 pairs of pereiopoda rather strongly built, with the propodal joint twice as long as the carpal one, palm occupying $^2/_3$ of the length of the joint, and defined by a slight angle carrying 2 juxtaposed spines. Body of a more or less deep claret colour. Length of adult female reaching 9 mm., of male 15 mm.

Remarks. — The very pronounced sexual difference in this form has caused the establishment of several spurious species. Thus the *Caprella lobata* of Sp. Bate is undoubtedly the adult male of his *C. linearis,* and Rathke even described the species under 3 different names, as *C. phasma, acuminifera,* and *scolopendroides.* As in some other species of the genus, the young, not yet sexually developed male does not much differ from the female, whereas the adult male acquires a very different appearance, both in the great prolongation of the 2 anterior body-segments, and in the structure of the posterior gnathopoda, partly also in that of the superior antennæ. The latter organs, moreover, seem to be subjected to some variation as to the form of the peduncular joints and the relative length of the flagellum, which led Boeck to the establishment of another spurious species, *C. laticornis.* The size is also very variable, and the male is always much larger than the female. In the male sex this species may be easily recognized by the structure of the posterior gnathopoda, the basal joint of which is unusually long and slender, the propodos being also very much elongated and narrow in proportion to its length.

Occurrence. — The species is very abundantly met with along the whole Norwegian coast, from the Christianiafjord to the North Cape in comparatively shallow water among algæ.

Distribution. — British Isles (Sp. Bate), Bohuslän (Bruzelius), Kattegat (Meinert), the Baltic (Moebius), Dutch coast (Hoeck), coast of France (Chevreux), Iceland (Norw. North Atl. Exped.).

7. **Caprella septentrionalis,** Kroyer.

(Pl. 237, fig. 1.)

Caprella septentrionalis, Kroyer, Nat. Tidsskr. 1 ser. Vol. 4, p. 545; Pl. VIII, figs. 10—19.

Syn.: Squilla lobata, Fabricius.
» Caprella cercopoides, White.
» — longicornis, Boeck.

Body somewhat more strongly built than in the preceding species. and having the back smooth, or with only slight traces of obtuse tuberculiform prominences; the anterior part in male considerably more prolonged than in female, though scarcely exceeding in length the 2 succeeding segments combined. Cephalosome much shorter than the succeeding segment, and having in front of the cervical impression an obtuse tubercle, which sometimes appears bifurcate at the tip. Eyes small, round, with dark red pigment. Superior antennæ in female scarcely attaining half the length of the body, 3rd joint of the peduncle somewhat shorter than the 1st, flagellum not attaining the length of the peduncle, and composed of about 16 articulations; those in male comparatively more elongated, with the joints of the peduncle somewhat expanded and ciliated on the edges. Inferior antennæ in female about $^2/_3$ as long as the superior, in male scarcely half as long, and of the usual structure. Anterior gnathopoda nearly as in *C. linearis.* Posterior gnathopoda in female having the propodos somewhat larger, otherwise of a shape very similar to that in the above-mentioned species; those in male attached somewhat behind the middle of the corresponding segment, and much stronger than in female, basal joint comparatively short, propodos exceedingly large and rather broad at the base, tapering distally, palm densely setous, with a small dentiform projection beyond the middle and an angular lobe in front, defining angle rather projecting, dactylus very strong and abruptly curved in its outer part. Branchial lamellæ in female of moderate size and obovate in form, in male very large and rounded oval. The 3 pairs of pereiopoda rather strong, with the propodal joint considerably dilated in the middle, palm not nearly occupying $^2/_3$ of the length of the joint, and defined by a somewhat projecting angle carrying 2 juxtaposed spines. Body of a pale greenish hue, changing to olive-brown, and mottled all over with small dark specks. Length of adult female reaching 19 mm., of male 27 mm.

Remarks. — This form was first described by Kroyer under the above name. It is most probable that the *Squilla lobata* of Fabricius refers to the present species, and this is also the case with *C. cercopoides* of White. The *C. longicornis* of Boeck scarcely differs from males of the present species, except in the bifurcation of the cephalic nodule and this may be only an accidental feature. Though nearly allied to *C. linearis*, the present form is undoubtedly specifically distinct, being easily recognized by its more strongly built body, the want of distinctly defined dorsal tubercles, and, more particularly, by the rather different structure of the posterior gnathopoda in the male.

Occurrence. — Off the coast of Finmark this species is very frequently met with in comparatively shallow water, among algæ and Hydroida. It also extends southwards along the whole west coast of Norway, at least to Stavanger, but has not yet been found off the south coast.

Distribution. — Greenland (Kroyer), Spitsbergen (Goës), Baffin's Bay (White), Bohuslän (Bruzelius), Kattegat (Meinert). —

8. **Caprella punctata**, (Boeck).

(Pl. 237, fig. 2).

Caprella punctata, Boeck, Crust. Amph. bor. & arct. p. 197.

Female. – Body comparatively strongly built and coarsely spinous, some of the spines, arranged along the back, being considerably larger than the others. Cephalosome having above, in front of the cervical impression, a large, somewhat flattened tubercle, bifurcate (or sometimes tripartite) at the tip, and behind the same, 3 spiniform tubercles, the 2 anterior ones being juxtaposed; each of the 4 succeeding segments with about 3 more conspicuous dorsal spines. Eyes small, orbicular. Superior antennæ but little exceeding in length $^1/_3$ of the body, 3rd joint of the peduncle considerably shorter than the 1st, flagellum not attaining the length of the peduncle, and composed of about 15 articulations. Inferior antennæ projecting considerably beyond the peduncle of the superior ones, and of the usual structure. Anterior gnathopoda comparatively more strongly built than in *C. septentrionalis*, otherwise of a very similar structure. Posterior gnathopoda rather powerful, and partly covered with small tubercles, meral joint angularly produced below, propodos very large, oval in form, with several distinct tubercles above, palm having in front an angular lobe succeeded by a small, dentiform projection, defining angle rather prominent and tipped by a strong spine. Branchial lamellæ of moderate size, and obovate in form. The 3 pairs of pereiopoda very strong and partly tubercular, propodal joint much dilated in the middle, with the palm comparatively short, scarcely occupying more than half the length of the joint, defining angle rather projecting, and armed with 2 juxtaposed, denticulated spines. Body, according to Boeck, of a light colour, mottled with dark specks. Length of adult female 15 mm.

Remarks. — The present species, established by Boeck, is nearly allied to *C. septentrionalis,* and is considered by Dr. P. Mayer to be only a variety of this form. I have never, however, among the numerous arctic specimens examined of the above-named species, found any attempt to the peculiar spinous armature distinguishing the present species, and as there are also some differences in the structure of the several appendages, I have felt justified in maintaining this form as a distinct species. Prof. Meinert would also seem to have some doubt about the identification made by Dr. Mayer. According to Boeck, the male does not differ much from the female; but it is most probable, that he has only examined young, not yet sexually developed males.

Occurrence. — I have met with this species occasionally off the west coast of Norway, in comparatively shallow water among algæ. Boeck records it from Sondmore and from the Trondhjemsfjord.

Distribution. — Kattegat (Meinert).

9. **Caprella monocera**, G. O. Sars, n. sp.

(Pl. 238, fig. 1).

Body extremely slender and elongated, especially in the male, with scattered small tubercles dorsally. Cephalosome with a single erect, corniform tubercle (not bifurcate) in front of the cervical impression. Each of the 3 succeeding segments with a single dorsal tubercle about in the middle; antepenultimate segment scarcely longer than the preceding ones, and having 3 pairs of small dorsal tubercles. Eyes very small, orbicular. Superior antennæ comparatively slender and elongated, exceeding half the length of the body, 2nd joint of the peduncle considerably longer than the 1st, 3rd joint a little shorter than the latter, flagellum exceeding in length the peduncle, and composed of about 20 articulations; those in male having the flagellum still more elongated, and composed of as many as 30 articulations. Inferior antennæ scarcely half as long as the superior, and of the usual structure. Anterior gnathopoda with the propodos fully 3 times as long as the carpus, and of oblong triangular form. Posterior gnathopoda moderately strong, propodos oblong oval in form, and having the palm divided in front into 2 small dentiform projections; those in male not very different, though, as usual, attached behind the middle of the corresponding segment, and having the propodos considerably larger than in female. Branchial lamellæ rather small. The 3 pairs of pereiopoda moderately strong, with the propodal joint somewhat expanded, palm exceeding half the length of the joint. Colour in the living state of the animal not yet stated. Length of adult female 15 mm., of male 27 mm.

Remarks. — I cannot identify this form with any of the earlier described species. It is somewhat intermediate in character between *C. septentrionalis* and *C. microtuberculata,* yet differing from either of them in several points. It may be chiefly recognized by its extremely slender and narrow body, the comparatively elongated superior antennæ, and the acute, undivided cephalic tubercle.

Occurrence — A few specimens of this form was found among *C. septentrionalis*, collected, I believe, off the Finmark coast.

10. **Caprella Lovéni**, Boeck.

(Pl. 238, fig. 2).

Caprella Lovéni, Boeck, Crust. amph. bor. & arctica, p. 196.

Male. — Body unusually short and robust, with the back smooth, or only exhibiting slight traces of tubercles. Cephalosome with an obtuse prominence in front of the cervical impression; 2nd body-segment scarcely longer than the 3rd. Eyes small, orbicular. Superior antennæ comparatively short, but little exceeding $^1/_3$ of the length of the body, joints of the peduncle somewhat expanded and finely ciliated on the edges, 3rd joint shorter than the 1st, flagellum half the length of the peduncle, and composed of about 11 articulations. Inferior antennæ of the usual structure. Anterior gnathopoda very short and stout, with the propodos rather broad in proportion to its length. Posterior gnathopoda likewise unusually stout, and originating somewhat beyond the middle of the corresponding segment, basal joint rather short and slightly serrated anteriorly, propodos very large and broad at the base, outer part tapering, palm densely hairy, and produced in front to a triangular lappet succeeded by a short dentiform projection, the two being defined by a narrow sinus, posterior angle rather prominent, dactylus strong and curved. Branchial lamellæ very large, orbicular. The 3 pairs of pereiopoda short and stout, with the propodal joint rather expanded. Colour in the living state of the animal not yet stated. Length of adult male 12 mm.

Remarks. — The above characterized form is undoubtedly that described by Boeck as *C. Lovéni.* It has been considered by Dr. P. Mayer as only a variety of *C. septentrionalis,* and this view is also adopted by Prof.

Meinert. In my opinion, however, it ought to be maintained as a distinct species, differing, as it does, very markedly in the much shorter and stouter body, as also in the less elongated superior antennæ and pereiopoda. Unfortunately only the male sex is as yet known. But as the males, as a rule, are much more slender than the females, the female of this species would in all probality exhibit a quite unusually short and compact form, and thereby be well distinguishable from the female of *C. septentrionalis.*

Occurrence. — Only a single male specimen has hitherto come under my notice. It was taken, together with other species, at Bejan, in the outer part of the Trondhjemsfjord. The specimen examined by Boeck, was from the west coast of Norway, the exact locality not being stated.

Distribution.. — Kattegat (Meinert).

11. **Caprella æquilibra**, Say.

(Pl. 238, fig. 3).

Caprella æquilibra, Say, Journ. Acad. Philadelphia I.

Syn.: Caprella Januarii, Krøyer.
» — Esmarkii, Boeck.
» — monacantha, Heller.
» — obesa, Haswell.

Male. — Body comparatively robust and perfectly smooth above, with the anterior part (cephalosome + 1st free body-segment) very much elongated, occupying half the length of the body. Cephalon angularly produced in front. First free body-segment fully as long as the 2 succeeding ones combined, and having ventrally, between the bases of the posterior gnathopoda, an acute projection, and on each side another spiniform process pointing anteriorly. Eyes small, round. Superior antennæ about half the length of the body, joints of the peduncle rather expanded and covered with small spines, 3rd joint nearly twice as long as the 1st, flagellum scarcely attaining the length of the peduncle, and composed of about 11 articulations. Inferior antennæ about half the legth of the superior, and of the usual structure. Anterior gnathopoda about as in *C. Lovéni.* Posterior gnathopoda originating from the posterior part of the corresponding segment, basal joint quite short, propodos very large and oblong in form, tapering distally, palm but sparingly setous, and exhibiting in front a triangular lobe succeeded by a very small dentiform projection, defining angle well marked. Branchial lamellæ of moderate size and obovate in form. The 3 pairs of pereiopoda wanting in the specimen examined. Colour, according to Dr. P. Mayer, light greyish, mottled with darker specks. Length of adult male 13 mm.

Remarks. — There cannot be any doubt that the *C. Esmarkii* of Boeck is that described by Sp. Bate as *C. æquilibra.* Kroyer's description of his *C. Januarii* also agrees in all essential points with the present species, and this is also the case with *C. monacantha* of Heller. Dr. P. Mayer moreover regards *C. obesa* of Haswell as identical with this species. It may be readily recognized in the male sex by the enormous prolongation of the anterior part of the body, and by the oblong form of the propodos of the posterior gnathopoda. A peculiar characteristic first noticed by Heller, is the ventral spine issuing between the bases of the posterior gnathopoda. The very extensive geographical distribution of this species is very remarkable.

Occurrence. — I have not myself met with this form. The figure here given is from a specimen in Boeck's collection labelled *C. Esmarkii.* According to that author, it has been found at Bejan in the outer part of the Trondhjemsfjord.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux), Adriatic (Heller), gulf of Naples (P. Mayer), Azores (Barrois), Atlantic coast of North America (Say), Brazil (Kroyer), Japan (de Haan), Indian Islands (Stebbing), New South Wales (Hasvell), New Zealand (Thomson). —

12. **Caprella microtuberculata**, G. O. Sars.

(Pl. 239, fig. 1).

Caprella microtuberculata, G. O. Sars, Crust. & Pycnog. nova in Exped. Norv. collecta. No. 43.

Body very much elongated and rather slender, especially in the male, with slight traces of dorsal tubercles, those in the last 3 segments being more conspicuous and exhibiting a similar arrangement to that in *C. linearis* and *monocera;* antepenultimate segment rather elongated, exceeding in length the last 2 segments combined. Cephalosome smooth above. Eyes small, rounded. Superior antennæ exceedingly elongated, nearly attaining the length of the whole body, 2nd joint of the peduncle twice the length of the 1st, 3rd joint a little longer than the latter, flagellum nearly twice the length of the peduncle, and composed of from 20 to 30 articulations. Inferior antennæ not nearly attaining half the length of the superior, and of the usual structure. Anterior gnathopoda rather short and stout. Posterior gnathopoda very powerfully developed, basal joint widening distally and terminating in front in an acute triangular lappet, ischial and meral joints likewise acutely produced, propodos exceedingly large, oblong oval in form and scarcely tapering distally, palm produced in front to an angular lappet succeeded by a dentiform projection, defining angle well marked, dactylus strong and curved. Posterior gnathopoda in male somewhat larger than in female, and attached beyond the middle of the corresponding segment; otherwise of a very similar structure. Branchial lamellæ small, narrow oblong in form. The 3 pairs of pereiopoda moderately strong, propodal joint twice the length of the carpal one, and having the palm much longer than the upper margin. Body whitish, more or less variegated with a light brown pigment. Length of adult female 22 mm.

Remarks. — The present species was detected during the Norwegian North Atlantic Expedition, and has been described and figured by the author in the account of the Crustacea of that Expedition. It is easily recognized by its slender and elongated body, the unusual length of the superior antennæ, and the powerfully developed posterior gnathopoda. Dr. Hansen describes a form from Greenland, which he considers as a variety of this species (var. spinosa). In my opinion, however, this form ought to be regarded as a distinct species.

Occurrence. — Some specimens of this form were found attached to a *Sertularia* dredged at Hammerfest. It is now for the first time added to the Norwegian fauna.

Distribution. — Off Beeren Eyland (Norw. North Atl. Exp.)

13, **Caprella ciliata,** G. O. Sars.

(Pl. 239, fig. 2).

Caprella ciliata, G. O, Sars, Oversigt af Norges Crustaceer I, p. 114, Pl. 6, fig. 9.

Body exceedingly slender and narrow, especially in the male, with the back smooth throughout; antepenultimate segment very much elongated, considerably exceeding in length the last 2 combined, Anterior part of the body in male, as usual, more prolonged than in female. Eyes small, rounded. Superior antennæ somewhat exceeding half the length of the body, 2nd joint of the peduncle about twice as long as the 1st, 3rd joint longer than the latter, flagellum about the length of the peduncle, and composed of 13—15 articulations. Inferior antennæ half the length of the superior. Anterior gnathopoda less strong than in the 3 preceding species, propodos oblong oval in form. Posterior gnathopoda in female of moderate size, with the propodos oval in form, palm having in front an angular lobe succeeded by a dentiform projection occurring about in the middle, the two being defined by a narrow sinus, posterior angle rather prominent and tipped with a small spine; posterior gnathopoda in male of a rather different shape, the propodos being considerably expanded in its proximal part, and clothed all over with delicate cilia, palm deeply excavated in the middle, and having posteriorly 2 diverging, triangularly pointed projections, dactylus very strong and densely setous. Branchial lamellæ very small and narrow. The 3 pairs of pereiopoda not very strong, and rapidly increasing in length, propodal joint rather narrow, though with the palm distinctly defined. Body light yellowish, pellucid, without any pigmentary ornament. Length of adult female 11 mm., of male 13 mm.

Remarks. — This species was first described by the author, in the above quoted paper, from male specimens. The female somewhat resembles that of *C. linearis*, but is easily distinguished by its more slender and perfectly smooth body, and more particularly by the greater length of the antepenultimate body-segment. In the male sex, this form cannot be confounded with any of the other species, being highly distinguished by the peculiar shape of the propodos of the posterior gnathopoda and its dense clothing of cilia.

Occurrence. — I have met with this form occasionally in several places of the west coast of Norway, as also in the Trondhjemsfjord. It is a true deep-water form, only occurring in depths ranging from 50 to 100 fathoms. Out of Norway it has not yet been recorded.

14. **Caprella acanthifera**, Leach.

(Pl. 239, fig. 3).

Caprella acanthifera, Leach, Edinb. Encycl. VII, p. 404.

Syn.: Caprella acuminifera, Desm.
» — armata, Heller.
» — leptonyx, Heller.
» — calva, Sp. Bate.
» — hystrix, Krøyer.

Female. — Body comparatively short and stout, with the back conspicuously spinous, and the antepenultimate segment not longer than the last 2 combined. Cephalosome perfectly smooth, and of a somewhat unusual shape, being transversely truncated in front and strongly gibbous in front of the cervical impression. First free body-segment with 2 juxtaposed dorsal spines in front of the middle and another at the posterior part; the 2 succeeding segments each with 5 spines, one at the posterior part, a pair in the middle, and another pair of considerably smaller spines at the anterior part; the 3 posterior segments each with a single pair of dorsal spines. Eyes very small, orbicular. Superior antennæ rather slender, somewhat exceeding in length half the body, 1st joint of the peduncle the shortest, 3rd joint nearly as long as the 2nd, flagellum much shorter than the peduncle, and composed of about 9 articulations. Inferior antennæ very narrow and but sparingly setous, flagellum much shorter than the last peduncular joint. Anterior gnathopoda of the usual structure. Posterior gnathopoda with the propodos oval in form, palm without any lobe or processes in front, but having posteriorly 2 small projections, each tipped with 2 small spines. Branchial lamellæ comparatively small. The 3 pairs of pereiopoda rather slender, propodal joint sublinear, without any distinctly defined palm, but having, beyond the middle, anteriorly, 2 juxtaposed spines of a similar appearance to those defining the palm in other species. Colour light red. Length of adult female 7 mm.

Remark. — This form was first described by Leach under the above name. But the name *acanthifera* was subsequently applied by Sp. Bate in his «Catalogue of Amphipoda in the British Museum» to a very different species, whereas the true Leachian form was described as a new species under the name of *C. calva.* In the subsequent work of Sp. Bate & Westwood this was, however, corrected, and the species *C. calva* withdrawn as a synonym to *C. acanthifera.* According to Dr. P. Mayer, the 2 species described by Heller as *C. leptonyx* and *C. armata* are referable to the same species, and the *C. acuminifera* of Desmarest and *C. hystrix* of Krøyer are also believed to be merely synonyms. The species may be easily recognized in both sexes by the peculiar form of the cephalon, which by Sp. Bate is characterised as «skull-like». Moreover the structure of the posterior gnathopoda and that of the pereiopoda is rather distinct.

Occurrence. — I have only seen 2 female specimens of this form, which were collected at Korshavn, west coast of Norway, in comparatively shallow water.

Distribution. — British Isles (Sp. Bate), coast of France (Chevreux), Azores (Barrois), gulf of Naples (P. Mayer), Adriatic (Heller). —

Fam. 25. Gyamidæ.

Body short, depressed, with the lateral parts of the segments more or less expanded. Cephalon attenuated in front, and more or less completely fused together with the 1st segment of mesosome. Urosome forming a small nodiform appendage, without any distinct limbs. Eyes small, punctiform, placed on the upper face of the cephalon. Superior antennæ well developed, though having a rudimentary flagellum. Inferior antennæ extremely small. Buccal area minute, flattened, quadrangular, occurring beneath the anterior part of the cephalon. Mandibles without any trace of palps. First pair of maxillæ with the palp small, uniarticulate, basal lobe wanting. Maxillipeds with only a single lobe inside, palps either well developed or rudimentary. Gnathopoda more or less unequal, the posterior ones always very strongly built, prehensile, with the joints partly coalesced, and the propodos very large, dactylus strong, hooked. The 2 anterior pairs of pereiopoda wanting; the 3 posterior ones subequal and very strong, resembling in structure the posterior gnathopoda. Branchial appendages 2 pairs, digitiform, extended laterally, sometimes simple, sometimes divided; incubatory lamellæ likewise 2 pairs, forming together the rounded marsupial pouch. Animal parasitic on the skin of whales.

Remarks. — This family comprises the so called «whale-lices», the systematic position of which is now generally recognized to be in close relation to the *Caprellidæ*, though they very much differ as to the outward appearance. In the latter respect they much more readily recall some *Pycnogonidea*, for instance the species of the genus *Pycnogonum*, and indeed this external resemblance has, as is well known, caused a confusion of these widely separate groups. Besides the typical genus *Cyamus*, another genus *Platycyamus* has been established by Lütken, to include the *C. Thomsoni* of Gosse, and it is very probable, that on a closer examination of the oral parts and branchial appendages, it will be found necessary to establish several other genera. Only a single species of this family has hitherto been stated to belong to the fauna of Norway, but it is very easy to believe, that several other species will be added in the future, on a closer examination of the whales killed. The Norwegian form has shown itself to be the type of a new genus, nearly allied to *Cyamus*, though evidently distinct.

Gen. **Paracyamus,** G. O. Sars, n.

Syn.: Cyamus Lütken (part).

Body moderately expanded in female, much more slender and also of considerably larger size in the male. Cephalon completely fused together with the 1st segment of mesosome. Superior antennæ well developed, with the flagellum uniarticulate. Inferior antennæ very small, 4-articulate. Anterior lip rather broad, bilobed; posterior lip with the inner lobes very narrow. Mandibles comparatively stout, without any molar expansion. First pair of maxillæ with the masticatory lobe armed with strong, denticulated spines, palp not reaching to the end of that lobe, and densely clothed with slender spines. Second pair of maxillæ very small, issuing from a common basal segment, inner lobe extremely minute and bisetose, outer one rounded and setiferous. Maxillipeds with the palp rudimentary, uniarticulate. Gnathopoda very unequal, the anterior ones being much smaller than the posterior, and partly concealed beneath them. Branchial appendages simple, elongated, conically tapering. Pereiopoda very strong, hooked.

Remarks. — The present new genus is somewhat intermediate between *Cyamus* and *Platycyamus*, agreeing with the former in the structure of the gnathopoda, with the latter in the rudimentary condition of the maxillipeds. Besides the species described below, the *C. erraticus* Rouss. & Vaux., as also *C. pacificus* Lutken would seem to belong to this genus.

Paracyamus boopis, (Lütken).

(Pl. 240).

Cyamus boopis, Lütken, Bidrag til kundskaben om Arterne af slægten *Cyamus;* Danske Vid. Selskab. Skrifter, 5th series, Vol. 10 p. 262, Pl. III, fig. 6.

Syn.: Oniscus ceti, O. Fabr. (not Linné).

Body in female oblong fusiform in outline, with the branchiferous segments much broader than the others, and firmly connected; in male much more slender, nearly linear, with the branchiferous segments scarcely broader than the others and, like those, having the lateral parts separated by rather wide intervals; 1st free body-segment in both sexes transversely quadrangular in form, with the lateral corners somewhat exserted; last segment obtusely triangular. Cephalosome occupying about $^1/_5$ of the length of the body, and considerably attenuated in front. Eyes very small, placed dorsally at about the anterior third part of the cephalosome. Superior antennæ in female twice the length of the cephalosome, in male somewhat longer, joints of the peduncle slightly diminishing in size, flagellum scarcely more than half the length of the last peduncular joint. Inferior antennæ scarcely more than half the length of the frontal margin, basal joint small, rounded, penultimate joint the longest. Anterior gnathopoda with all the joints well defined, propodos in female oval in form, with the lower edge forming in the middle a rounded projection defining the palm, that in male somewhat broader, with a triangular projection in the middle of the palmar edge; dactylus in both sexes strongly curved and very acute. Posterior gnathopoda of same structure in the two sexes, though somewhat larger in the male, basal and ischial joints very short and imperfectly defined, meral joint having outside a lamellar, bifurcate projection, carpal joint very small, propodos, on the other hand, large and tumid, oval pyriform in shape, palmar edge with 2 distant triangular projections, the anterior of which is somewhat larger in the male, dactylus extremely strong and curved, terminating in a very acute point. Branchial appendages in female about half the length of the body, in male considerably longer, and having at the base below a small bilobed lamellæ (accessory branchia). Pereiopoda very strongly built, with the meral and carpal joints coalesced, forming outside a rounded expansion, inside an acute projection, propodal joint large, oblong oval in form, with the palmar edge smooth, dactylus strongly hooked. Urosome in female quite simple, forming a very small nodiform appendage containing the terminal part of the intestine, and having at the end on each side a rounded lobe; that in male provided at the base beneath with a membranous appendage divided by a narrow incision into 2 rounded lobes minutely ciliated on the edges. External sexual appendages in male, issuing from the lower face of the last body-segment, of the usual conical form. Colour light brownish violet, somewhat darker in male than in female. Length of adult female 8 mm., of male 12 mm.

Remarks. — There cannot be any doubt that Prof. Lütken is right in believing that the form recorded by O. Fabricius as parasitic on the Greenland «Keporkak» and named *Oniscus ceti* is this form and not that so named by Linné, which is the *Cyamus mysticeti* of Lütken. The *C. pacificus* of the latter author is very nearly allied to the present species, and this is also the case with *C. erraticus* of Rouss. & Vaux. From the latter the present species is chiefly distinguished by the body, especially of the male, being more slender, and by the less elongated branchial appendages.

Occurrence. — I have taken this form several times in great abundance from the common Humpback-Whale (Megaptera boops), killed off the Finmark coast, at Vadsø and Sørvig. It was found in different places of the skin of the whale: on the head, within the belly-furrows, in the sexual region, and on the breast-fins, generally associated with *Coronula diadema.*

Distribution. — Greenland (Fabricius), Iceland (Lütken).

APPENDIX.

Page 7. **Hyperia galba.**

Distribution. — Atlantic coast of North America (Sidn. Smith).

Page 9. **Hyperoche Krøyeri.**

Remarks. — The *Hyperia tauriformis* of Sp. Bate & Westwood is undoubtedly the same form, and as the specific name proposed by those authors is the older one, it should take the precedence of that of Bovallius.

Page 11. **Parathemisto oblivia.**

Distribution. — The Kara Sea (Hansen).

Page 14. **Euthemisto bispinosa.**

Remarks. — The *Themisto crassicornis* of Krøyer is most probably this species, and indeed the figure reproduced by Sp. Bate & Westwood of that form agrees so very closely with that given in the present work, that I cannot but believe both forms to be identical, though both Krøyer and Sp. Bate represent the back as being quite smooth. But the dorsal processes are often less conspicuous, and may thus have escaped the attention of the said authors.

Page 31. **Trischizostoma Raschi.**

I have recently had an opportunity of examining this remarkable form in the living state. During the summers of 1890 & 1891, I visited the Trondhjemsfjord for the purpose of investigating the fisheries, and by dropping the fishing-line into deep water, I succeeded several times in procuring this animal. It was in every instance found clinging to the skin of the common black dog-fish (Spinax niger), and in most cases to the belly, near the anal opening. It very easily detached itself from the fish, and swam about with great agility. The body was of a pure white colour, with a slightly rosy tinge, and exhibited along the back a very conspicuous, beautiful orange tint, which, in each of the segments of the mesosome, formed a double transversal band. The eyes were of a deep purplish brown colour. The incubatory pouch of most of the females was greatly extended, and filled with a very great number of eggs or young ones.

Page 56. **Hippomedon denticulatus.**

Distribution. — Greenland (Hansen).

Page 32. Gen. Normania.

Remarks. — As this name had been appropriated in Zoology at an earlier date, M. Bonnier has recently proposed to change it to *Normanion.* The sexual difference in this genus is very slight.

Page 33. **Normanion qvadrimanus.**

During my investigations in the Trondhjemsfjord, I found this form in great abundance clinging to the skin of fishes (both living and dead) caught on a fishing-line set in deep water. The parasitic nature of this animal, already indicated by the peculiar structure of the oral parts and of the anterior gnathopoda, has thus been ascertained.

Page 37. Add another species: —

Normanion amblyops, G. O. Sars, n. sp.

(Suppl. Pl. I, fig. 1).

Very like the type species as to outward appearance, but of somewhat larger size. Eyes very large and confluent, occupying nearly the whole surface of the cephalon, but having the visual elements imperfectly developed, pigment light reddish brown, and slightly areolated. Antennæ of a similar structure to that in *N. quadrimanus*, though with the flagella somewhat more elongated, and each composed of 6 articulations; accessory appendage of the superior ones 4-articulate. Anterior gnathopoda rather large, with the basal joint somewhat flexuous and occupying half the length of the leg, ischial joint elongated to an unusual extent, carpus forming below a comparatively short and obtusely rounded expansion, propodos much broader than it is long, with the upper face very short, the lower boldly curved, palm transverse and defined below by a dentiform projection with a comparatively small spine on each side, dactylus rather slender and perfectly smooth. Posterior gnathopoda, pereiopoda, uropoda and telson nearly as in the type species. Body pellucid, with a pale yellowish tinge, and exhibiting on each side, above the insertion of the coxal plates, a series of orange patches, anterior part of intestine very massive, and with dark brown contents. Length of adult female 5½ mm.

Remarks. — The present new species may be easily distinguished from *N. quadrimanus* by the imperfect development of the visual organs, as also by the somewhat different shape of the anterior gnathopoda, but otherwise it is very nearly allied to that species.

Occurrence. — Several specimens of this form were collected in the Trondhjemsfjord, at Rødbjerget, from the skin of living fishes (Gadus æglefinus and Spinax niger), caught on a fishing-line hauled up from the considerable depth of 200—300 fath.

Page 38. **Acidostoma obesum.**

Distribution. — West coast of France (Chevreux).

Page 40. **Ichnopus spinicornis.**

Distribution. — West coast of France (Chevreux).

Pag 42. Gen. **Lysianassa.**

The Rev. Mr. Stebbing proposed, in 1888, to change this name to *Lysianax*, since the name here given had already been appropriated in Zoology.

Page 44. **Socarnes Vahli.**

Distribution. — British Isles (Robertson).

Page 48. **Aristias audouinianus.**

Remarks. — The form described under this name, which is that recorded by Boeck as *A. tumidus,* is not, as formerly believed by me, the species of Sp. Bate, which latter will be described farther down as *Perrierella audouiniana.* For the present species, therefore, the name proposed by Dr. Hansen, viz., *Aristias neglectus,* ought to be retained.

The male of this and the other species of the genus does not differ from the female, except in the somewhat richer supply of olfactory cilia on the basal joint of the flagellum of the superior antennæ.

Page 50. Add 2 other species: —

Aristias microps, G. O. Sars, n. sp.

(Suppl. Pl. I, fig. 2).

Body short and stout, being rather tumid in its anterior part, with the back boldly vaulted. Cephalon very short and deep, with the lateral corners not produced at the tip, and the anterior edges nearly straight. First pair of coxal plates small and almost covered by the 2nd; 4th pair much broader than the 3rd, and somewhat expanded distally, inferior part broadly truncated; the 3 posterior pairs very small. Last pair of epimeral plates of metasome angularly produced at the lateral corners. Urosome rather massive, with the last segment comparatively large and convex above. Eyes quite rudimentary, being replaced on each side by a small patch of an opaque whitish pigment, without any trace of visual elements. Superior antennæ with the peduncle rather thick and having the 1st joint much longer than the other 2 combined, flagellum not attaining the length of the peduncle, and composed of 5 articulations; accessory appendage small, biarticulate. Inferior antennæ with the flagellum much shorter than the peduncle, and composed of 4 articulations only. Anterior gnathopoda with the propodos longer than the carpus, its inferior edge finely serrulated, and, moreover, armed with 2 short, widely separated denticles. Posterior gnathopoda comparatively less slender and less hirsute than in *A. neglectus,* propodos exceeding half the length of the carpus, and somewhat dilated in its proximal part. Pereiopoda not very much elongated, basal joint of last pair about the length of the remaining part of the leg, and somewhat narrowed distally. Last pair of uropoda with the rami comparatively short, the outer one with the basal joint very sharply defined from the spiniform terminal joint, inner ramus mucroniform and a little shorter than the outer. Telson short and broad, cleft very narrow and extending nearly to the base, terminal lobes obtusely rounded, and each armed with a single small apical denticle. Body semipellucid, of a yellowish hue; ova in the marsupial pouch dark violet. Length of adult female 3 mm.

Remarks. — This new species is at once distinguished from *A. neglectus* by the small and imperfectly developed eyes. It is also of a very inferior size, and, moreover, exhibits well-marked differences in the structure of the several appendages.

Occurrence. — I have only seen a few specimens of this form, which were collected from very deep water, partly in the Trondhjemsfjord, partly off the Nordland coast. Also among some Amphipoda sent me by Mr. Schneider and collected by him in the neighbourhood of Tromsø, a single specimen of this form occurred.

Aristias megalops, G. O. Sars, n. sp.

(Suppl. Pl. II, fig. 1).

Body comparatively more slender than in the preceding species, and not nearly so tumid in its anterior part. Cephalon comparatively larger, with the lateral corners slightly produced. Anterior pairs of coxal plates scarcely deeper than the corresponding segments, and of a shape similar to that in the preceding species. Last pair of epimeral plates of metasome acutely produced at the lateral corners. Urosome of moderate size. Eyes oblong oval in form and exceedingly large, nearly occupying the entire lateral faces of the cephalon, visual elements, however, imperfectly developed, pigment light reddish brown, and slightly areolated. Superior antennæ rather large, nearly equalling in length the cephalon and the 4 anterior segments of mesosome combined, joints of the peduncle successively diminishing in size, flagellum scarcely as long as the peduncle, and composed of 4 articulations only; accessory appendage small, biarticulate. Inferior antennæ with the flagellum about half as long as the peduncle, and 4-articulate. Gnathopoda and pereiopoda nearly as in *A. microps.* Last pair of uropoda with the outer ramus much longer than the inner, which latter is minutely serrulated on the inner edge. Telson comparatively small, about as broad as it is long, cleft narrow and extending beyond the middle, terminal lobes truncated at the tip, and each provided with a very small apical denticle. Colour light yellowish. Length of adult male scarcely attaining 3 mm.

Remarks. — This diminutive form is well distinguishable from any of the other species by its unusually large eyes, which in the living animal appear pretty well defined, though devoid of any distinctly developed visual elements. In the structure of the several appendages, it agrees very nearly with *A. microps.*

Occurrence. — Two or three specimens of this form were collected in the Trondhjemsfjord, at Rødbjerget, from the considerable depth of 300—400 fathoms.

Page 50. Add another genus: —

Gen. **Perrierella,** Chevreux & Bouvier 1892,

Syn.: Lysianassa, Sp. Bate (part).
» Aristias, Meinert (part).
» Pararistias, Robertson.

Form of body about as in the genus *Aristias.* Antennæ comparatively short and of a structure similar to that in the said genus. Oral parts likewise rather similar, though differing in the minor degree of prominence in the molar expansion of the mandibles, in the greater equality of the lobes of the 2nd pair of maxillæ, and in the poor development of the palps of the maxillipeds, the terminal joint of which is wholly wanting. Gnathopoda, pereiopoda and uropoda scarcely differing in their structure from those limbs in the genus *Aristias*. Telson, however, rather different, being entire, without any cleft. Sexual difference very slight.

Remarks. — The present genus was established in the year 1892 by MM. Chevreux and Bouvier, to include a form, which at first was believed to be new to science, but was subsequently shown by M. Bonnier to be the true *Lysianassa audouiniana* of Sp. Bate. In the same year, though perhaps a little later, Mr. Robertson examined the same form, and proposed for its reception the new genus *Pararistias*. The genus is indeed very closely related to *Aristias*, but may perhaps be retained on account of some differences occurring in the structure of the oral parts, and especially on account of the very differently shaped telson. It contains as yet but a single species, to be described below.

Perrierella audouiniana, (Sp. Bate).

(Suppl. Pl. II, fig. 2).

Lysianassa audouiniana, Sp Bate, Catal. of Amph. Brit. Mus., p. 69, Pl. XI, fig. 1.

Syn.: Aristias audouinianus, Meinert.
» Perrierella crassipes, Chevreux & Bouvier.
» Pararistias audouinianus, Robertson.

Body short and compact, with broadly rounded back. Cephalon about the length of the 1st segment of mesosome and rather deep, with the anterior edges somewhat convex, lateral corners slightly produced at the tip. Anterior pairs of coxal plates scarcely as deep as the corresponding segments; 1st pair small, and to a great extent covered by the 2nd, which are of a rounded oval form, with the distal edge slightly serrated; 3rd pair somewhat expanded distally; 4th pair of an irregular rhomboidal shape; the 2 succeeding pairs much smaller, and having the posterior lobe deeper than the anterior. Last pair of epimeral plates of metasome angularly produced at the lateral corners. Urosome short and stout. Eyes rather large, and of a somewhat oval form, being slightly narrowed above, pigment dark, with a chalky white coating. Superior antennæ about the length of the cephalon and the first 2 segments of mesosome combined, joints of the peduncle rapidly diminishing in size, flagellum much shorter than the peduncle, and composed of 4 articulations only; accessory appendage rather small, biarticulate. Inferior antennæ with the flagellum very small, not even attaining the length of the last peduncular joint, and 4-articulate. Anterior gnathopoda rather strong, propodos exceeding in length the carpus, and oval in form, with the lower edge somewhat curved in front and finely serrulated, being, moreover, armed with 3 or 4 small denticles. Posterior gnathopoda, as usual, more elongated and slender than the anterior ones, propodos exceeding half the length of the carpus, and imperfectly chelate at the tip. Pereiopoda short and stout, with the meral joint somewhat expanded, and the carpal joint very short, propodal joint about the length of the 2 preceding joints combined, and, as in the genus *Aristias*, forming at the end, below the dactylus, a dentiform projection; basal joint of last pair shorter than the remaining part of the leg, and oval in form. Last pair of uropoda with both rami finely denticulated on the edges, the inner one but little shorter than the outer. Telson nearly twice as long as it is broad at the base, and gradually tapering distally, tip narrowly truncated, with the lateral corners slightly produced. Colour yellowish, with a more or less distinct, darker shadow on the anterior part. Length of adult female 3½ mm.

Remarks. — There cannot be any doubt that the above-described form is that originally recorded by Sp. Bate as *Lysianassa audouiniana,* and that *Perrierella crassipes* of Chevreux & Bouvier is the same species. In its outward appearance it bears a very strong resemblance to the species of the genus *Aristias*, and it is only on a closer anatomical examination that some differences in the structure of the several appendages are revealed, showing it to be, in reality, generically distinct.

Occurrence. — I have met with this form of late years not infrequently in the Trondhjemsfjord in moderate depths, and occasionally also off the west coast of Norway.

Distribution. — British Isles (Sp. Bate), Kattegat (Meinert), coast of France (Chevreux), Mediterranean (Chevreux).

Page 56. **Hippomedon denticulatus.**

Distribution. — Greenland (Hansen).

Page 59. Add another species: —

Hippomedon robustus, G. O. Sars, n. sp.

(Suppl. Pl. III, fig. 1).

Body of a comparatively robust form, being less compressed than in the other species. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners acutely produced. Anterior pairs of coxal plates nearly twice as deep as the corresponding segments; 1st pair somewhat expanded distally, and broader than the 2nd; 4th pair much broader than the others, and produced below the posterior emargination to an acute projection. Last pair of epimeral plates of metasome having the posterior projection unusually short and broad, triangular in form, and not defined from the posterior edge by any incision. First segment of urosome with a slight saddle-like depression dorsally, but without any distinct projection. Integuments very finely and irregularly reticulated. Eyes narrow oblong in form, slightly widening below, without any trace of visual elements, pigment light red with a few opaque white stripes transversally. Superior antennæ with the first 2 joints of the peduncle somewhat produced anteriorly, flagellum in female nearly twice the length of the peduncle, and composed of about 11 articulations, the 1st of which is half as long as the remaining part of the flagellum; accessory appendage very slender and 4-articulate. Inferior antennæ in female nearly 3 times as long as the superior and very slender, last joint of the peduncle but little longer than the penultimate one, flagellum more than twice as long as the peduncle, and composed of about 32 articulations. Gnathopoda, pereiopoda and uropoda scarcely differing from those parts in the other species. Telson about twice as long as it is broad at the base, and gradually tapering distally, with 2 or 3 pairs of subdorsal denticles, cleft very narrow and extending beyond the middle, terminal lobes obtusely acuminate, each with a small apical denticle. Body whitish, pellucid, without any orange or crimson patches, but having the coxal plates and basal joints of the 3 posterior pairs of pereiopoda mottled with small, dark greenish spots; ova in the marsupial pouch of a rosy colour. Length of adult female 10 mm.

Remarks. —. Though nearly allied to the 3 species described in this work, the present new species may be readily distinguished from any of them by its more robust form of body, and especially by the unusually short and broad posterior projection of the last pair of epimeral plates of the metasome. In a living state, it is also at once distinguished from the 2 other Norwegian species by the absence of the crimson pigment adorning the urosome in both those species, as also by the peculiar dark greenish spots on the coxal plates and basal joints of the posterior pairs of pereiopoda.

Occurrence. — Several specimens of this species, all of them females, were collected in the Trondhjemsfjord, at Lexvigen, from a depth of about 50 fathoms. This is the only locality, where the species has hitherto occurred, within my experience.

Page 61. Add another species: —

Orchomene Hanseni, Meinert.

(Suppl. Pl. III, fig. 2).

Orchomene Hanseni, Meinert, Crustacea malacostraca; Det vidensk. Udbytte af Kanonbaaden «Hauchs» Togter, p. 154, Pl. 1. figs 18—22.

Syn.? Anonyx melanophthalmus, Norman.

Female. — Body rather short and stout, with broadly rounded back. Cephalon with the lateral corners somewhat projecting and narrowly rounded at the tip. Anterior pairs of coxal plates about twice as deep as the corresponding segments; 1st pair slightly concave anteriorly and nearly transversely truncated at the tip, with the posterior corner rectangular; 5th pair a little broader than they are deep. Last pair of epimeral plates of metasome having the lateral corners somewhat projecting and narrowly rounded at the tip, posterior edge perfectly smooth. First segment of urosome with a slight depression dorsally. Eyes unusually large, oblong oval in form, somewhat widening below, pigment very dark, almost black, visual elements well developed and very numerous. Superior antennæ comparatively short and stout, with the flagellum about as long as the peduncle and composed of 8 articulations, the 1st of which is shorter than the others combined, accessory appendage half the length of the flagellum and 5-articulate. Inferior antennæ scarcely longer than the superior and much more slender. Epistomal plate narrowly rounded and less projecting than in *O. Batei.* Gnathopoda nearly of same structure as in that species, except that the propodos of the posterior ones is less coarsely hirsute anteriorly. Pereiopoda likewise of a very similar shape. Last pair of uropoda with the inner ramus much shorter than the outer and simple mucroniform, the latter with 2 spines on the outer edge and one on each side of the small, spiniform terminal joint. Telson somewhat longer than it is broad, and but slightly tapering distally, with only a single pair of subdorsal denticles, cleft very short and angular, terminal lobes each tipped by a slender spine. Colour uniformly whitish, without any pigmentary ornament. Length of adult female 7 mm.

Remarks. — The present species, established by Prof. Meinert, is very nearly allied to *O. Batei*, but is apparently distinct, chiefly differing in the unusual size and dark pigmentation of the eyes, as also in the somewhat different shape of the last pair of epimeral plates of the metasome. It is very probable, that the *Anonyx melanopthalmus* of Norman, which I formerly identified interrogatively with *O. Batei*, may in reality turn out to be this species. In such case the specific name proposed by that author ought to be retained as the much older one.

Occurrence. — Only a single specimen of this form was taken last summer in the Christianiafjord, at Soon, from a depth of about 50 fathoms.

Distribution. — Kattegat (Meinert), ? Shetland Isles (Norman).

Page 62. **Orchomene serratus.**

(Suppl. Pl. IV, fig. 1).

The male of this species, and perhaps also that of *O. crispatus* and *O. pectinatus,* is markedly distinguished from the males of *O. Batei* and *O. amblyops* by the far less pronounced sexual difference, and in order to show this, I have thought it right on the accompanying plate to give a habitus figure of the adult male of the present species together with some anatomical details. On comparing these figures with the ones given on Pl. 23 which represent the female, it will be seen, that the male is of far inferior size, scarcely exceeding a length of 6 mm., and exhibits on the whole a comparatively shorter and stouter form, with the cephalon considerably larger in proportion to the rest of the body. The lateral corners of the cephalon are rather prominent, but do not otherwise differ in their form from those in the female.[1]) The eyes, on the other hand, are of comparatively larger size, and less narrowed in their upper part. The superior antennæ appear considerably thicker and more massive, the 1st articulation of the flagellum in particular being very large, and exhibiting a dense supply of long, diverging olfactory cilia. The inferior antennæ, unlike what is the case in *O. Batei* and *O. amblyops*, appear at first sight of the very same structure as in the female. On a closer examination, however, the flagellum is found, in reality, to be a little longer, and composed of a greater number of articulations, viz., 8 instead of, as in the female, only 6, and the 3 first of these articulations are each provided anteriorly with a well-developed calceola, wholly wanting in the female. The last pair of uropoda do not differ in any manner from those in the female.

Page 64. **Orchomene pectinata.**

Distribution. — The Kara Sea (Hansen).

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[1]) The fig. 1.C♂ on Pl. 23, at the right side, does not belong to the present species, but to *O. amblyops*.

Page 66. Gen. **Orchomenella.**

Remarks. — M. J. Bonnier has recently proposed to replace this name with *Tryphosa* because the *Orchomenella ciliata* of the author has turned out to be identical with *Anonyx namus* of Krøyer, which was quoted by Boeck in his great work as the type of his genus *Tryphosa.* But the diagnosis originally given by Boeck of the latter genus does not in reality apply to that species, which was not figured in his work, but more properly to the 2 species *T. Hørringii* and *T. nanoides.* Thus he says that the mandibular palp is affixed on the same level as the molar tubercle, which is not the case with the Krøyerian species; and moreover the anterior gnathopoda are characterised as elongated, which likewise cannot properly be said of the latter form, but may fairly be so of the other species referred by him to the genus *Tryphosa.* Under such cirumstances, I think I am right in retaining the genus *Orchomenella* in the sense originally adopted in this work.

Page 66. **Orchomenella minuta.**

Remarks. — M. J. Bonnier proposes to separate this species generically from *O. pinguis* on account of the epistomal plate being a little more prominent, and on this account to transfer it to the genus *Orchomene.* This is unquestionably erroneous, as the present species is otherwise very closely allied to *O. pinguis,* and by no means generically distinguishable from it. The latter species M. Bonnier ranges within the genus *Tryphosa.*

Distribution. — Atlantic coast of North America (Sidn. Smith), coas of France (Chevreux).

Page 67. **Orchomenella pingvis.**

Occurrence. — I have found this form of late years in several localities both of the south and west coasts of Norway, as also in the Trondhjemsfjord.

Distribution. — British Isles (Robertson).

Page 69. **Orchomenella ciliata.**

Remarks. — I fully admit that this form, as pointed out both by Dr. Hansen and M. Bonnier, is the true *Anonyx nanus* of Kroyer, and that of course the specific name *ciliata* ought to be discarded and replaced by that of *nana.* But as this species does not agree with the diagnosis given by Boeck of his genus *Tryphosa*, its name must be henceforth *Orchomenella nana*, and not, as proposed by Boeck and adopted by M. Bonnier, *Tryphosa nana.*

Distribution. — British Isles (Robertson), Dutch coast (Hoek).

Page. 70. **Orchomenella grønlandica.**

Remarks. — This species is transferred by M. Bonnier to the genus *Orchomene*, on account of the shape of the epistomal plate. It is, however, otherwise evidently more nearly related to the species of *Orchomenella* (Tryphosa Bonnier), though in some points also differing somewhat from the latter, as pointed out in the text. Perhaps it should more properly be regarded as the type of a separate genus.

Page 74. **Orchomenopsis obtusa.**

Of this form, hitherto only recorded from the Trondhjemsfjord, I have subsequently taken a single specimen in the Stavangerfjord, at Jelsø, from the considerable depth of 400 fathoms.

Page 75. Gen. **Tryphosa.**

Remarks. — For the reason above mentioned, M. Bonnier has proposed a new generic name for the species referred by me to this genus, viz., that of *Tryphosella.* As, however, I do not agree in this authors view, I propose to retain the above name in the sense adopted in this work.

Page 76. **Tryphosa nana.**

Remarks. — As the *Anonyx nanus* of Krøyer has turned out to be a different species and identical with *Orchomenella ciliata* of the author, the present species must of course have a new specific name. M. Bonnier has proposed to name it *Tryphosella Sarsi*, which, according to the opinion here set forth, should be changed to *Tryphosa Sarsi.* The distribution recorded under this species ought of course to be transferred to the true *Orchomenella nana* (= ciliata G. O. Sars). The present form has not as yet been observed out of Norway.

Page 17. **Tryphosa Hørringii.**

Occurrence. — I found this species last summer not infrequently in the Christianiafjord, at Soon, at a depth of 50—80 fathoms.

Distribution. — British Isles (Robertson).

Page 79. **Tryphosa nanoides.**

Distribution. — British Isles (Robertson).

Page 80. Add another species: —

Tryphosa compressa, G. O. Sars.

(Suppl. Pl. IV, fig. 2).

Body comparatively slender and greatly compressed. Cephalon about the length of the 1st segment of mesosome and rather deep, with the lateral corners greatly projecting, though narrowly rounded at the tip. Anterior pairs of coxal plates very large, more than twice as deep as the corresponding segments; 1st pair, as usual, narrowed distally, with the anterior edge straight; 4th pair considerably expanded in their outer part, and angularly produced below the posterior emargination; 5th pair not fully as broad as they are deep. Last pair of epimeral plates of metasome angularly produced at the tip, posterior edge straight. First segment of urosome with a compressed, biangular dorsal projection similar to that occurring in *T. angulata*. Eyes very narrow and slightly sigmoid in form, almost occupying the entire height of the cephalon, pigment light red. Superior antennæ rather slender, about equalling in length the cephalon and the first 3 segments of mesosome combined, 1st joint of the peduncle almost 3 times as long as the other 2 taken together, flagellum about twice the length of the peduncle, and composed of 12 articulations, the 1st of which about equals in length the 3 succeding ones combined; accessory appendage half the length of the flagellum, and 6-articulate, 1st articulation not larger than the succeeding ones. Inferior antennæ in female about the length of the superior, flagellum 14-articulate. Epistomal plate large and evenly rounded in front. Anterior gnathopoda of the usual slender form, propodos shorter than the carpus, oblong linear in shape, with the palm quite short and a little oblique, dactylus with a well-marked secondary denticle. Posterior gnathopoda scarcely longer than the anterior, propodos densely hirsute and of quite an unusual size, being much broader than the carpus and gradually widening somewhat, distally, palm transverse and defined below by a projecting angle, dactylus rather strong and curved. Pereiopoda comparatively slender, and of a structure similar to that in the other species. Last pair of uropoda with the inner ramus somewhat longer than the basal joint of the outer, and simple mucroniform. Telson oblong triangular in form, gradually tapering distally, with 3 pairs of subdorsal denticles, cleft very narrow, and extending nearly to the base. Colour in the living state of the animal not yet stated. Length of adult female 8 mm.

Remarks. — This new species, which was announced in a note to the present work on page 76, is easily distinguishable from the other species by the greatly compressed body, the form of the lateral corners of the cephalon, the narrow, sigmoid eyes, and especially by the very robust structure of the propodos of the posterior gnathopoda. It is otherwise nearly allied to *T. Hørringii* and *T. angulata,* and has the 1st segment of the urosome produced dorsally in a very similar manner.

Occurrence. — Some specimens of this form were collected during the Norwegian North Atlantic Expediton in Stat. 124 and 359, the first located outside the Nordland coast, the 2nd, west of Spitsbergen. It was, however, at that time erroneously determined as *T. Hørringii.*

Page 83. **Pseudotryphosa umbonata.**

A single living specimen of this rare form was recently taken at Bejan from a depth of 30—40 fathoms. The colour of the animal was a pure white, and the eyes, which could not be distinctly seen in the alcoholic specimens formerly examined by me, showed themselves to be of a similar narrow sigmoid form to that in *Hoplonyx cicada,* with light red pigment.

Page 88. **Anonyx nugax.**

As observed in the remarks to this species, the arctic form would seem to differ somewhat from that occurring off the coast of Norway in the structure of the anterior gnathopoda, and may perhaps be specifically distinct. In this case, the name *A. lagena* proposed by Krøyer should be retained for the Norwegian form.

Page 90. **Anonyx Lilljeborgii.**

I have found this species of late years rather frequently in the Trondhjemsfjord, as also occasionally off the west and south coasts of Norway in depths varying from 10 to 50 fathoms.

Page 92. **Hoplonyx cicada.**

Distribution. — Coast of France (Chevreux).

Page 93. **Hoplonyx similis.**

Distribution. — British Isles (Robertson).

Page 106. **Onesimus Normani.**

Of this species, hitherto only recorded from Finmark, a single specimen was taken last summer in the Christianiafjord, at Soon, from a depth of about 80 fathoms. The body was of a pure white colour, with reddish ova in the marsupial pouch.

Page 109. **Chironesimus Debruynii.**

A specimen taken in the Trondhjemsfjord, at Skjorn, exhibited a yellowish white colour, with translucent dark brown intestine, and reddish ovaries.

Page 113. **Lepidepecreum carinatum.**

Distribution. — Coast of France (Chevreux).

Page 118. Add another new genus: —

Podoprionella, G. O. Sars, n.

Body short and stout, with the metasome and urosome comparatively poorly developed. Anterior pairs of coxal plates of moderate size, posterior ones much smaller. Antennæ (in female) short and subequal in length; accessory appendage of the superior ones small. Epistome scarcely projecting. Anterior lip narrowly rounded. Mandibles with the cutting edge simple, truncated, molar expansion obsolete, palp rather large, but sparingly setous, and originating nearer the base than the tip of the mandible, terminal joint short, lamellar. First pair of maxillæ with the masticatory lobe divided into several very coarse, unguiform teeth, basal lobe not observed, palp normal. Second pair of maxillæ with the lobes very small, and each carrying only a few simple spines at the tip. Maxillipeds with the basal lobes very narrow, masticatory lobes large, lamellar, both pairs nearly smooth, palps poorly developed, not reaching to the tip of the masticatory lobes, terminal joint obsolete. Anterior gnathodopa rather strong, terminating in a well-formed chela. Posterior gnathopoda very slender and of usual structure. Anterior pairs of pereiopoda slender and nearly smooth; the 3 posterior pairs with the basal joint large and lamellar, its posterior edge being divided into coarse pectiniform serrations. Uropoda rapidly diminishing in size; the 2 anterior pairs with the rami narrow, and provided with a few serrations on the edges; last pair very small, with both rami simple, mucroniform. Telson entire, squamiform.

Remarks. — This new genus agrees in some characteristics with the genus *Podoprion,* recently established by M. Chevreux, but differs in several other points very markedly, for instance, in the structure of the antennæ and maxillipeds, as also in that of the uropoda and telson. It contains as yet but a single species, to be described below.

Podoprionella norvegica, G. O. Sars, n. sp.

(Suppl. Pl. V).

Body quite smooth, and of an unusually short and compact form, with the anterior part rather tumid, and the back greatly vaulted; metasome and urosome combined much shorter than the mesosome. Cephalon comparatively short and deep, with the lateral corners somewhat projecting and narrowly rounded at the tip. Anterior pairs of coxal plates rather broad, though not much deeper than the corresponding segments; 1st pair of an irregularly rounded orm; 4th pair very much expanded in their outer part, forming a large, angular lobe below the posterior emargination; 5th pair unusually small, nearly twice as broad as they are deep, and having the posterior lobe larger than the anterior. Last pair of epimeral plates of metasome produced at the lateral corners to a small, upturned dentiform projection, posterior edge, above this, considerably curved and quite smooth. Segments of urosome smooth above. Eyes of moderate size, rounded oval in form, with about 10 large and strongly refractive lenses, pigment dark brown. Superior antennæ with the joints of the peduncle successively diminishing in size, flagellum shorter than the peduncle, and composed of 5 articulations; accessory appendage small, biarticulate. Inferior antennæ scarcely as long as the superior, flagellum somewhat exceeding half the length of the peduncle and 4-articulate. Anterior gnathopoda very strongly developed, with the propodos rather tumid and exceeding in length the 3 preceding joints combined, chela distinctly forcipate and fully occupying the outer third part of the propodos, dactylus strong and curved, thumb of about same length, and acutely produced at the tip. Posterior gnathopoda considerably more elongated and very slender, being finely setous in their outer part, propodos narrow linear in form, and exceeding half the length of the carpus, tip minutely chelate. Anterior pairs of pereiopoda comparatively elongated and nearly naked, propodal joint longer than the carpal one. The 3 posterior pairs of pereiopoda but little different in length, basal joint in all very large, oval in form, with from 12 to 14 coarse serrations on the posterior edge, the inferior of which are truncated at the tip, propodal joint about the length of the 2 preceding joints combined, dactylus of moderate length and nearly straight. The 2 anterior pairs of uropoda with the rami subequal in length, the inner one with 2 opposite serrations, the outer with 2 serrations on the outer edge only. Last pair of uropoda with the inner ramus scarcely more than half as long as the outer. Telson of a rounded form, with a small indentation on each side of the obtusely rounded tip. Body pellucid, with a faint yellowish tinge and exhibiting within the mesosome a remarkable globular dilatation of the intestine. Length of the specimen examined but little exceeding 3 mm.

Remarks. — The above described remarkable Lysianassid may at once be recognized by its short and compact body and the poor development of the posterior divisions, somewhat reminding in this respect of certain species of the genus *Metopa.* The strongly chelate anterior gnathopoda and the peculiar, coarse serration of the basal joints of the 3 posterior pairs of pereiopoda afford another very conspicuous characteristic.

Occurrence. — Only a single specimen of this interesting form was found in the Trondhjemsfjord, at Rødbjerget, at a depth of 60—80 fathoms.

Page 131. **Bathyporeia Robertsoni.**

This form was collected last summer rather abundantly in the Christianiafjord, at Laurkullen, Moss and Sandøsund, on sandy bottom, near the shore. The female is very like that of *B. pelagica* and *B. pilosa*, but is at once recognizable by its dark pigmented eyes.

Page 133. **Bathyporeia pilosa.**

I found this species during the past summer in great abundance at Fredriksværn, outside the Christianiafjord, at a depth of from 1 to 3 fathoms on a bottom of fine sand. The body is pellucid, with a more or less distinct orange tinge, the ovaries, as also the ova in the marsupial pouch, being of a dark bluish violet colour. The pigmentation of the eyes is of a dark red colour.

Page 138. **Urothoë norvegica.**

Distribution. — Coast of France (Chevreux).

Page 141. **Argissa typica.**

Distribution. — British Isles (Robertson).

Page 144. **Phoxocephalus Holbølli.**

Occurrence. — Christianiafjord, in several places, occasionally.

Page 158. **Harpinia crenulata.**

Distribution. — Coast of France (Chevreux), British Isles (Herdman).

Page 168. **Ampelisca assimilis.**

Distribution. — British Isles (Robertson).

Page 169. **Ampelisca lævigata.**

Distribution. — Dutch coast (Hoek).

Page 173. **Ampelisca spinipes.**

Distribution. — British Isles (Robertson), Dutch coast (Hoek).

Page 194. **Haploops setosa.**

Distribution. — British Isles (Robertson).

Page 202. **Stegocephaloides christianiensis.**

Distribution. — British Isles (Robertson), coast of France (Chevreux).

Page 209. **Andaniopsis nordlandica.**

I found this form last summer, not infrequently, in the Christianiafjord, at Soon, at a depth of 50—80 fathoms.

Page 214. **Astyra abyssi.**

Found along with *Andaniopsis nordlandica* in the Christianiafjord, at Soon.

Page 221- **Amphilochoides odontonyx.**

Remarks. — The species described under this name is not the *Amphilochus odontonyx* of Boeck, which is unquestionably that described farther down as *A. pusillus.* I propose for the present species the name of *Amphilochoides Boeckii.* The statements about the distribution should of course be transferred to the next species.

Page 222. **Amphilochoides pusillus.**

As stated above, this is the true Boeckian species, and should of course be named *Amphilochoides odontonyx.* I found this form last summer very frequently in the Christianiafjord, at several places, among decaying algæ brought up from a depth of from 20 to 40 fathoms. The colour, owing to a rich supply of pigment, is very dark, sometimes nearly black.

Distribution. — British Isles (Robertson).

Page 224. **Gitanopsis bispinosa.**

Distribution. — British Isles (Robertson).

Page 226. **Stenothoë marina.**

I have found this form of late years in great abundance within the gill-sac of different Ascidiæ.

Page 250. **Metopa Alderi.**

Distribution. — Coast of France (Chevreux).

Page 254. **Metopa borealis.**

I have recently met with this form rather frequently in the Stavangerfjord in 20—30 fathoms, on rocky bottom among algæ.

Distribution. — British Isles (Robertson).

Page 255. **Metopa rubrovittata.**

Distribution. — British Isles (Robertson), coast of France (Chevreux).

Page 256. **Metopa pusilla.**

Distribution. — British Isles (Herdman).

Page 260. **Metopa affinis.**

Distribution. — British Isles (Robertson).

Page 261. **Metopa Bruzelii.**

Distribution. — British Isles (Herdman).

Page 273. **Metopa longimana.**

Distribution. — Coast of France (Chevreux).

Page 276. **Metopa nasuta.**

Distribution. — British Isles (Robertson), Greenland (Hansen).

Page 296. **Monoculodes carinatus.**

Found occasionally in the outer part of the Christianiafjord (Sandøsund), on sandy bottom.

Page 299 Add another species: —

Monoculodes Schneideri. G. O. Sars, n. sp.

(Suppl. Pl. VI, fig. 1).

Body rather slender and scarcely carinated, though the segments of metasome are, as usual, sharply defined above. Cephalon exceeding in length the first 3 segments of mesome combined, frontal part rather produced and strongly convex anteriorly, rostrum very short and almost perpendicularly deflexed, its tip sharply pointed, lateral corners of cephalon rectangular. Coxal plates comparatively small; 1st pair but little expanded distally; 4th pair deeper than the others, with the distal edge evenly curved, and the infero-posteal corner considerably produced Eye very large and protuberant, placed just within the convex anterior part of the front, visual elements very distinct, pigment red. Superior antennæ reaching about to the end of the peduncle of the inferior, 1st joint of the peduncle a little longer than the 2nd, flagellum shorter than the peduncle, and composed of about 8 articulations. Inferior antennæ (in female) with the last 2 joints of the peduncle of about equal length, flagellum nearly attaining the length of the peduncle. Anterior gnathopoda of moderate size, with the propodos oblong oval in form, being about twice as long as it it is broad, palm not distinctly defined, carpal lobe rather broad and extending about to the palm of the propodos Posterior gnathopoda not very slender, propodos scarcely 3 times as long as it is broad, carpal lobe rather narrow, and extending to the palm of the propodos. The 2 anterior pairs of pereiopoda moderately stout, with the carpal joint not much expanded, propodal joint about same length, dactylus nearly as long as the latter. The 2 succeeding pairs of the usual structure. Last pair of pereiopoda very much elongated, attaining $^2/_3$ of the length of the body, basal joint exceedingly broad and of an irregularly rounded form, propodal joint very slender, exceeding in length the carpal one. Telson quadrangular in form, with the terminal edge very slightly insinuated. Body variegated with a dark brownish pigment, forming alternating irregular patches. Length of adult female 6 mm.

Remarks. — The present new species is somewhat intermediate in character between *M. tessellatus* and *borealis*, yet evidently distinct from either of them. It may best be recognized by the peculiar form of the frontal part of the cephalon, and the large and protuberant eye.

Occurrence. — A few specimens of this form were sent me for examination by Mr. Schneider. They vere collected at Kirknes, in the neighbourhood of Tromsø, in 7—10 fathoms. I have much pleasure in dedicating this fine species to its discoverer, the diligent Norwegian naturalist, to whom we owe, as is well known, a very interesting account of the arctic Œdiceridæ.

Page 302. **Monoculodes falcatus.**

Found last summer in the Christianiafjord, at Soon, together with *M. norvegicus.*

Page 311. **Monoculopsis longicornis.**

Distribution. — Greenland (Hansen).

Page 315. **Pontocrates norvegicus.**

Remarks. — The form described under this name has turned out to be a new species, different from any of the earlier known forms. I propose for it the name of *Pontocrates arcticus.* Of course the statements about distribution should be transferred to the true *P. norvegicus* of Boeck (= Kroyera arenaria of Sp. Bate), to be described below.

Pontocrates norvegicus, Boeck.

(Suppl. Pl. VI, fig. 2, Pl. VII, fig. 1).

Pontocrates norvegicus, Boeck, Crust. Amph. bor. & arctica, p. 91.

Syn.: Krøyera arenaria, Sp. Bate.

Body somewhat robust, with the segments very sharply defined along the dorsal line. Cephalon about the length of the first 3 segments of mesosome combined, and evenly convex above, rostrum comparatively short and but slightly curved, lateral corners angular in front. Anterior pairs of coxal plates somewhat irregular in shape; 1st pair slightly expanded distally and transversely truncated at the tip, without any insinuation of the terminal edge; 2nd pair much narrower than the 1st and tapering to an obtuse point; 3rd pair obliquely truncated at the end, the distal edge forming a slight sinuosity; 4th pair much deeper than the preceding pairs, distal edge slightly curved, infero-posteal corners but very little projecting; 5th pair very large and broad. Epimeral plates of metasome much larger in male than in female, and evenly rounded. Eye scarcely protuberant, rounded, with light red pigment, without any whitish coating. Superior antennæ in female comparatively short, scarcely twice as long as the cephalon, 1st joint of the peduncle a little longer and much thicker than the 2nd, flagellum about the length of the peduncle, and composed of 9 articulations; those in male much more strongly built, with the flagellum larger and somewhat thickened, being composed of 11 articulations, of which the 6 or 7 proximal ones are densely clothed inside with delicate olfactory cilia. Inferior antennæ in female but little longer than the superior, with the flagellum about the length of the peduncle; those in male very much elongated, equalling in length the whole body, flagellum extremely slender, filiform. Anterior gnathopoda rather stout, propodos gradually widening distally, with the palm nearly transverse and somewhat curved, not nearly attaining the length of the hind margin, its edge clothed with a dense series of long and stiff bristles, carpal lobe projecting somewhat beyond the propodos. Posterior gnathopoda extremely slender and but sparingly setous, propodos very narrow, sublinear, thumb of the chela but little broader than the dactylus, carpal process projecting considerably beyond the latter. The 2 anterior pairs of pereiopoda very stout and densely setiferous, carpal joint somewhat expanded and scarcely longer than the propodal one, dactylus extremely minute, nearly obsolete. The 2 succeeding pairs likewise short and stout, though somewhat increasing in length. Last pair of pereiopoda exceeding half the length of the body, basal joint oval quadrangular in form, with the posterior edge quite straight, and terminating in a small, angular lobe. Last pair of uropoda with the rami narrow lanceolate, and armed each with a number of small spines. Telson oval in form, with the tip evenly rounded. Body semipellucid, of a whitish colour, with a slightly yellowish tinge. Length of adult female 6 mm., of male 6½ mm.

Remarks. — There cannot, I think, be any doubt that the above-described form is that recorded by Sp. Bate as *Krøyera arenaria,* and this is still more confirmed by the detail-figures given by Dr. Hoek of the same form. Now, it will appear evident, on a closer comparison of the figures given by Boeck of his *P. norvegicus* with those here reproduced, that in reality, he has had before him the very same species, and that he was consequently quite right in identifying both. From *P. arcticus* it may at once be distinguished by the structure of the gnathopoda, both pairs of which exhibit characteristic differences. Moreover the peculiarly irregular shape of the anterior pairs of coxal plates occurring in both sexes, will serve for easily distinguishing this species from the former.

Occurrence. — I have of late years found this species occasionally in 2 localities of the Norwegian coast, viz., at Skudesnes and in the outer part of the Christianiafjord, at Sandøsund. It occurred in both places in about 10 fathoms, on a bottom of coarse sand.

Distribution. — Dutch coast (Hoek).

Page 317. Add another species: —

Pontocrates altamarinus (Sp. Bate).

(Suppl. Pl. VII, fig. 2).

Krøyera altamarina, Sp. Bate & Westwood, Brit. sess. eyed Crust., p. 117.

Body somewhat less robust than in the preceding species, with the segments less sharply marked off dorsally. Cephalon exceeding in length the first 2 segments of mesosome combined, dorsal face somewhat flattened, rostrum comparatively more projecting than in *P. norvegicus*, and but slightly deflexed, lateral corners obtusangular. Anterior pairs of coxal plates less irregular in shape; 1st pair considerably expanded distally with the terminal edge evenly curved; the 2 succeeding pairs nearly of equal shape, both being narrowly truncated at the tip; 4th pair having the infero-posteal corner rather much produced. Eye comparatively large and somewhat protuberant, with yellowish red pigment. Antennæ in both sexes rather unequal, though more so in male than in female. Superior antennæ in female equalling in length the cephalon and the first 3 segments of mesosome combined, 2nd joint of the peduncle rather slender and elongated, fully equalling the 1st in length, flagellum much shorter than the peduncle, and composed of 8 articulations. Inferior antennnæ in female nearly twice the length ot the superior, last joint of the peduncle the longest, flagellum exceeding in length the peduncle. Antennæ in male modified in a manner similar to that in *P. norvegicus*. Anterior gnathopoda with the propodos rather large, oval fusiform in outline, with the palm obliquely curved and much longer than the hind margin, its edge densely fringed with very small curved spinules and a few slender bristles, carpal lobe not projecting beyond the propodos. Posterior gnathopoda somewhat less slender than in *P. norvegicus*, propodos slightly tapering distally, thumb of the chela but little broader than the dactylus, and fringed with small curved spinules similar to those occurring on the palm of the anterior gnathopoda, carpal process but slightly projecting beyond the latter. The 2 anterior pairs of pereiopoda less robust than in the said species, but very densely setiferous, meral joint rather expanded, carpal joint elongated, propodal joint linear, with the dactylus very small. The 2 succeeding pairs of the usual structure. Last pair of pereiopoda considerably exceeding half the length of the body, basal joint of a rounded quadrangular form, with the posterior edge slightly convex. Last pair of uropoda with the rami exceedingly narrow and without any denticles. Telson oval in form, with the tip very slightly insinuated in the middle. Body semipellucid, marbled along the dorsal face with an opaque light yellowish pigment; antennæ banded with orange; ova in the marsupial pouch reddish brown. Length of adult female nearly 7 mm.

Remarks. — The above described form, which undoubtedly is that recorded by Sp. Bate & Westwood as *Krøyera altamarina,* is somewhat intermediate in character between *P. arcticus* and *P. norvegicus*, though easily distinguishable from either of them by the different longitudinal relation of the antennæ in the female. In the structure of the gnathopoda it somewhat more resembles *P. arcticus,* but the thumb of the chela in the posterior pair is much narrower. It was formerly erroneously adduced by me as a synonym to *P. arcticus* (norvegicus).

Occurrence. — A few specimens of this form, males and females, were found at Skudesnes in about 20 fathoms, on a bottom of coarse sand. It is now for the first time added to the fauna of Norway.

Distribution. — British Isles (Sp. Bate); coast of France (Chevreux).

Page 320. **Synchelidium intermedium.**

Found last summer not unfrequently in the Christianiafjord, at Soon, at a depth of 50—80 fathoms.

Page 327. **Halimedon Mülleri.**

Distribution. — Greenland (Hansen).

Page 329. **Halimedon acutifrons.**

Found last summer, occasionally, in the Christianiafjord, at Soon, at a depth of 50—80 fathoms.

Page 349. **Paramphithoë bicuspis.**

Distribution. — British Isles (Robertson).

Page 351. **Paramphithoë monocuspis.**

Distribution- — British Isles (Herdman).

Page 352. **Paramphithoë assimilis.**

Distribution. — British Isles (Robertson).

Page 395. **Bruzelia typica.**

Distribution. — British Isles (Robertson).

Page 408. **Pardaliscella Boeckii.**

Several specimens found last summer in the inner part of the Christianiafjord, at Soon, at a depth of about 80 fathoms. Body whitish, without any pigmentary ornament; eyes wholly absent.

Page 410. **Nicippe tumida.**

Distribution. — Greenland (Hansen).

Page 430. **Rhachotropis tumida.**

Remarks. — By a mistake, the specific name has been spelt, both in the text and the plate, *tumida*, instead of *inflata,* which is the name originally proposed.

Page 447. **Calliopius Rathkei.**

I have recently received specimens of this species from the east coast of North America, through the kindness of Prof. E. L. Mark.

Page 451. **Pontogoneia inermis.**

Distribution. — Atlantic coast of North America (Packard).

Page 465. **Paratylus falcatus.**

Remarks. — Mr. Walker has recently called my attention to the fact that the form described by Metzger under this specific name, as also that recorded by Dr. Hoek from the Dutch coast, has the segments of the metasome produced dorsally to well-marked, posteriorly-pointing projections, which, on the other hand, do not occur in any of the Norwegian specimens examined by me. Mr. Walker tells me, that both forms occur in Colwyn Bay, but that the spined form is that most frequently met with. Of the latter he kindly sent me some specimens for examination, and although they look very like the Norwegian form, especially as regards the peculiar modification of the 1st pair of pereiopoda, I am much inclined to believe that both forms are in reality specifically distinct. In that case, the above name should be restricted to the spined form, whereas the Norwegian species should retain the specific name originally proposed by the author, viz., that of *uncinatus.*

Page 479. **Tritæta gibbosa** (male).

(Suppl. Pl. VIII, fig. 1).

On the original plate, only the female of this form was figured, and in the text the male was only briefly mentioned as exhibiting the usual sexual differences. Mr. Walker has, however, recently called my attention to some very curious peculiarities in the male of this form, which had hitherto escaped my attention, and in order to show these, I give on the accompanying plate a habitus-figure and some anatomical details of that sex. As will be seen from the figure, the body is, as usual, much more slender than in the female, and also more compressed, and moreover, the segments of the metasome, especially the last one, have the posterior edge somewhat raised dorsally. The eyes are comparatively larger and more oval in form, extending somewhat higher up on the sides of the cephalon. Both pairs of antennæ, but especially the inferior ones, are comparatively more slender and elongated, and on the peduncular joints of the latter a dense clothing of fine hairs is observable. The most striking feature is however the peculiar modification of the anterior gnathopoda in this sex, the propodos constantly having, on the upper side, a very conspicuous, deep sinus, of which no trace is found in the female. According to Mr. Walker, this peculiar sexual character has given rise to the establishment of a spurious species, viz., *T. dolichonyx* (Nebeski), which is nothing but the male of *T. gibbosa*. It may be added that the branchial lamellæ, unlike what is the case in the female, are distinctly lobular, as in certain species of the genus *Paratylus*, and that the last pair of uropoda have the rami comparatively larger.

Page 503. **Gammarus pulex.**

Distribution. — France (Bonnier).

Page 515. **Eriopisa elongata.**

Distribution. — British Isles (Robertson).

Page 569. **Photis Reinhardi.**

Distribution. — British Isles (Herdman).

Page 576. **Podoceropsis excavata.**

Distribution. — Coast of France (Chevreux).

Page 579. **Amphithoë rubricata.**

Distribution. — Atlantic coast of North America (Sidn. Smith), Greenland (Hansen, as Sunamphithoë longicornis).

Page 599. **Janassa capillata.**

Distribution. — Coast of France (Chevreux).

Page 610. **Siphonoecetes Colletti.**

Distribution. — British Isles (Herdman), coast of France (Chevreux, as S. typicus).

Page 521. **Unciola planipes.**

Distribution. — Coast of France (Chevreux).

Page 624. **Neohela monstrosa.**

Distribution. — Greenland (Hansen).

Page 626. **Chelura terebrans.**

Distribution. — Coast of France (Bonnier).

Page 693. **Dulichia curticauda.**

Distribution. — Greenland (Hansen, as D. tuberculata).

Page 642. Add another species: —

Dulichia Normani, G. O. Sars, n. sp.

(Suppl. Pl. VIII, fig. 2).

Female. — Body moderately slender and quite smooth. Cephalon exceeding in length the first 2 segments of mesosome combined, and angularly produced in front. Coxal plates very small. Eyes extremely minute, though provided with well-developed visual elements and dark pigment. Antennæ rather strongly built and very much elongated, both pairs being fringed posteriorly with dense fascicles of long setæ, last peduncular joint of the superior ones much longer than the others, flagellum scarcely attaining the length of the latter joint, accessory appendage extremely minute. Inferior antennæ not much shorter than the superior. Gnathopoda apparently of a similar structure to that in *D. porrecta.* Basal joint of the 2 anterior pairs of pereiopoda rather much expanded, and oblong fusiform in outline. The 3 posterior pairs of pereiopoda not much elongated, and but sparingly spinous. Uropoda and telson of the usual structure. Colour in alcoholic specimens uniformly greyish white, without any pigmentary ornament. Length of adult female 5 mm.

Remarks. — The present new species, detected by the Rev. Mr. Norman, may at once be distinguished from any of the other known species by its unusually small, though distinctly developed eyes, as also by the strongly built and very densely setiferous antennæ. In the latter respect it somewhat resembles a species described by the author from the Norwegian North Atlantic Expedition as *D. hirsuticornis;* but in this species the eyes are imperfectly developed, without any visual elements.

Occurence. — Some specimens of this form, all of them females, were collected by the Rev. Mr. Norman in the Trondhjemsfjord, at Rodbjerget, and kindly sent me for examination. I have much pleasure in dedicating the species to that celebrated naturalist, to whom we owe so many valuable papers in different branches of Zoology.

Page 655. **Pariambus typicus.**

Distribution. — Coast of France (Chevreux).

Page 659. **Caprella septentrionalis.**

Distribution. — Atlantic coast of North America (Sidn. Smith).

Page 664. **Caprella microtuberculata.**

In a postscriptum to his treatise on the Greenland Malacostraca, Dr. Hansen observes that the form described by him as *C. microtuberculata, var. spinosa* is more properly a distinct species, for which he proposes the name of *C. dubia.*

Page 660. **Caprella punctata** (male)

(Suppl. Pl. VIII, fig. 3).

On the accompanying plate I have figured a somewhat defective specimen of a *Caprella* found in Boeck's collection and labelled *C. robusta* n. sp., which I believe is the adult male of his *C. punctata.*

As seen from the figure, it differs from the female, as figured on Pl. 237, in the circumstance that the body is less densely spinous, whereas it is not at all more slender of form, and so far very markedly differs from the male of *C. septentrionalis,* its nearest ally. The posterior gnathopoda are, as usual in male specimens, attached behind the middle of the corresponding segment, and exhibit a rather robust structure, the basal joint being quite short, the propodos very large and partly tubercular on the upper face, gradually tapering distally, with the palm defined posteriorly by a strong projection, and exhibiting in front 2 triangular lobes separated by a narrow sinus. The dactylus is extremely strong and curved, with a dentiform projection on the inner edge, near the base. The length of the specimen is fully 23 mm.

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